CZ100

Comprehensive Harbor Plan

Kittery, Maine

Prepared for:
Town of Kittery

By:
Wallace, Floyd, Associates Inc.
Architects • Landscape Architects • Planners • Urban Designers

In association with:
T.Y. Lin International
Engineers • Planners

August 1990

COMPREHENSIVE HARBOR PLAN, KITTERY, MAINE

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August 1990

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SECTION I:

INTRODUCTION

INTRODUCTION

Kittery's harbor is an important component of the Town's character and heritage. The harbor provides a livelihood for fishermen and persons offering boating services and facilities, recreational opportunities for both the boating and non-boating public, and educational resources. The harbor also improves the aesthetic environment for residents of and visitors to Kittery. The residents of Kittery, and the State of Maine, have become increasingly concerned with preserving the harbor environment and enhancing waterfront resources for today and future generations.

This concern resurfaced during the Town's recent Comprehensive Plan process, and was reinforced by the State's recent Shoreland Zoning Ordinance which mandates that Towns enact zoning and land use controls to protect those areas within 250 feet of the normal high-water line of any coastal or freshwater wetland, saltwater body or river. It was decided during the Comprehensive Plan process to delay decisions regarding the harbor until a comprehensive harbor planning process could be initiated. A Harbor Plan Advisory Committee was appointed to develop, with the help of a consultant team, a Comprehensive Harbor Plan for the Town of Kittery.

THE PLANNING PROCESS

A detailed inventory and analysis of waterfront resources was conducted to document the types and condition of existing resources. These resources range from environmentally sensitive areas to recreation facilities to boat launching areas. The demand, both existing and future, for these facilities was also analyzed. This inventory provided the Advisory Committee with the background necessary to plan for the future of Kittery's Harbor.

Interest in the plan was increased through programs on the harbor at the public schools and through extensive newspaper coverage. Discussions about waterfront resources, at both Advisory Committee Meetings and a Public Meeting, led to the development of goals and objectives for the Harbor. Finally, a set of recommendations was developed, which when implemented, will result in the achievement of the publicly articulated goals and objectives. These recommendations were presented at a second Public Meeting for review and discussion, and the plan was finalized.

THE PLAN

This Plan represents the results of the harbor planning process. The plan is organized into the following sections:

- Inventory and Analysis of Existing Conditions
- Goals and Objectives
- Recommendations
- Shoreland Zoning Ordinance Recommendations
- Capital Improvements Plan

- Implementation Schedule

Appendices to this document are bound separately and include more detailed information on the inventory, methodology used for projections of mooring space demand, and a sample shellfish ordinance. A new mooring plan was also developed for the Town as part of this project. The new plan, included in the appendices, maximizes the number of available moorings.

ADMINISTRATION OF THE PLAN

The Harbor Plan will be implemented according to the following general framework:

1.) Adoption of the Plan by Town Council

2) Revision of town zoning and other waterfront ordinances with public input

3) Execution of other recommendations by the identified responsible party

SECTION II:

INVENTORY AND ANALYSIS OF EXISTING CONDITIONS

INVENTORY AND ANALYSIS OF EXISTING CONDITIONS

OVERVIEW

Kittery Harbor comprises the essential elements of a successful waterfront. The character of the waterfront changes dramatically through the Town, from the Downtown working waterfront with its Town Dock and numerous Badger's Island commercial fishing piers, to the residential and recreation areas of Kittery Point and the Islands. The Harbor also encompasses several areas of boating interest and numerous environmentally sensitive areas. The specific resources are discussed more fully under the Planning District Descriptions below (see Figures 1 - 5).

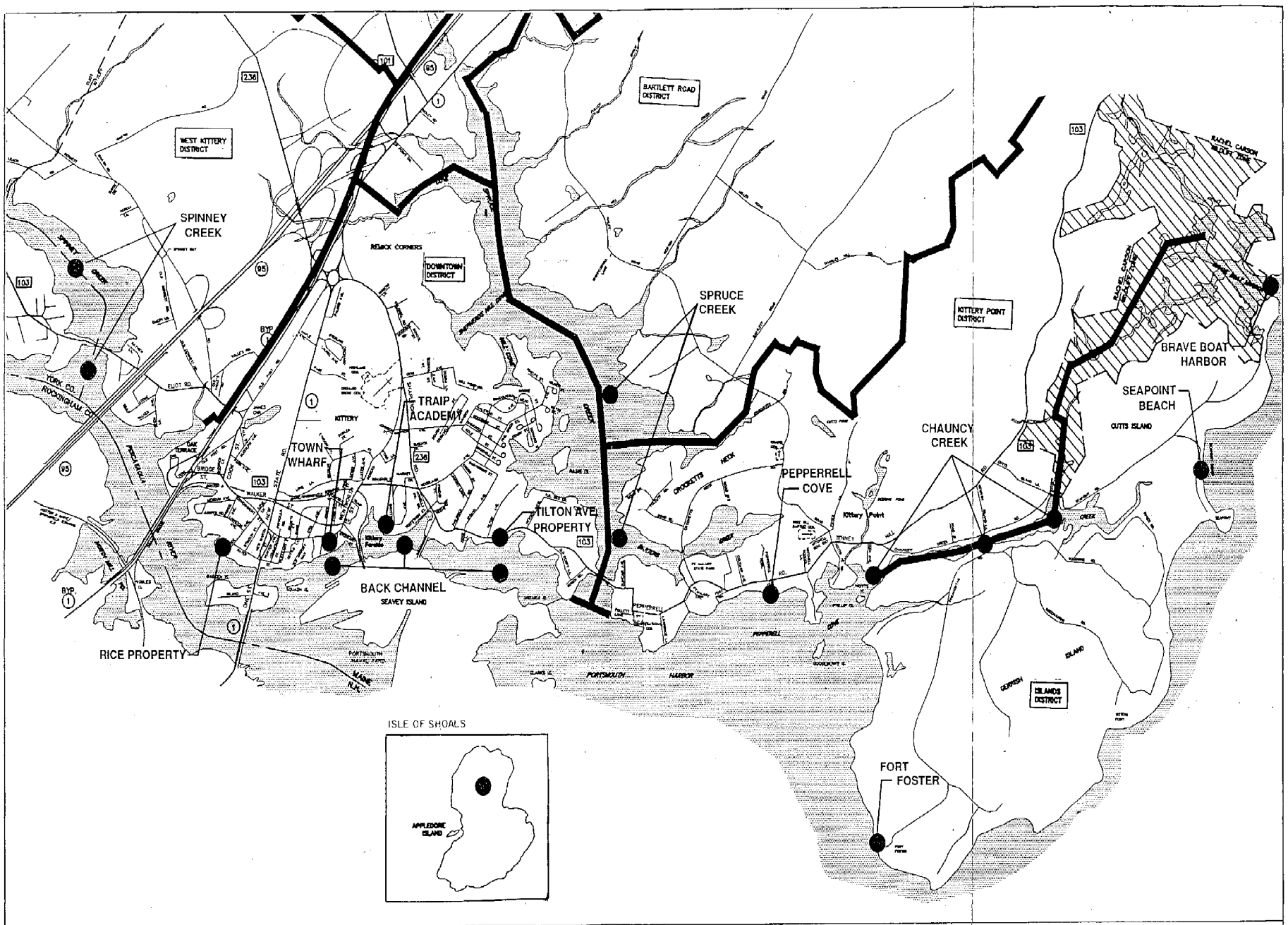
HARBOR DESCRIPTION

Portsmouth Harbor is located at the mouth of the Piscataqua River and is the seaward approach to several towns, including Kittery, New Castle, New Market and Durham, as well as the Cities of Portsmouth and Dover. The Harbor is characterized by a federally designated channel, generally considered ice-free, with depths of about 35 feet carried through Portsmouth Harbor to the Memorial (U.S. Route 1) Highway Bridge. From the Memorial Bridge, a dredged, marked channel leads for about 3.5 miles to a turning basin about four-tenths of a mile above Frankfort Island in the Piscataqua River. The controlling depth in the dredged channel ranges from 30 to 33 feet above mean low water (MLW) at mid-channel.

The mean tidal range is 8.7 feet at Kittery Point. The tidal currents are considered extremely strong and special care is required by boaters in the restricted sections of the channel above and below the fixed bridges. The Portsmouth Harbor is used extensively by large vessels and considered to be a customs port of entry.

There are several dangerous ledges located near the Harbor entrance. These include Moores Rock, near Brave Boat Harbor, which is unmarked and has a five foot cover. A long reef is also located just south of Brave Boat Harbor with approximately four feet of cover. There are two dangerous ledges about 2.5 miles offshore. York ledge, marked by a buoy, has a three-foot cover; Murray Rock (1.5 miles southwest of York Ledge) has a six-foot cover and is also marked by a buoy. Bottom conditions between the ledges are less than ideal and vessels are advised to pass outside of the lighted whistle buoy.

In general, navigation is hampered in the Harbor by rapid tidal currents. Velocities will vary greatly depending on the width and depth of the river and adjacent tributaries. Hazardous cross currents occur at many locations due to the irregularities of width and depth. Navigation of deep draft vessels is limited to the 3-hour period between 1.5 hours before and after slack water.



TOWN OF KITTERY
Kittery Harbor Plan

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Figure 1
BOATING / RECREATIONAL RESOURCES

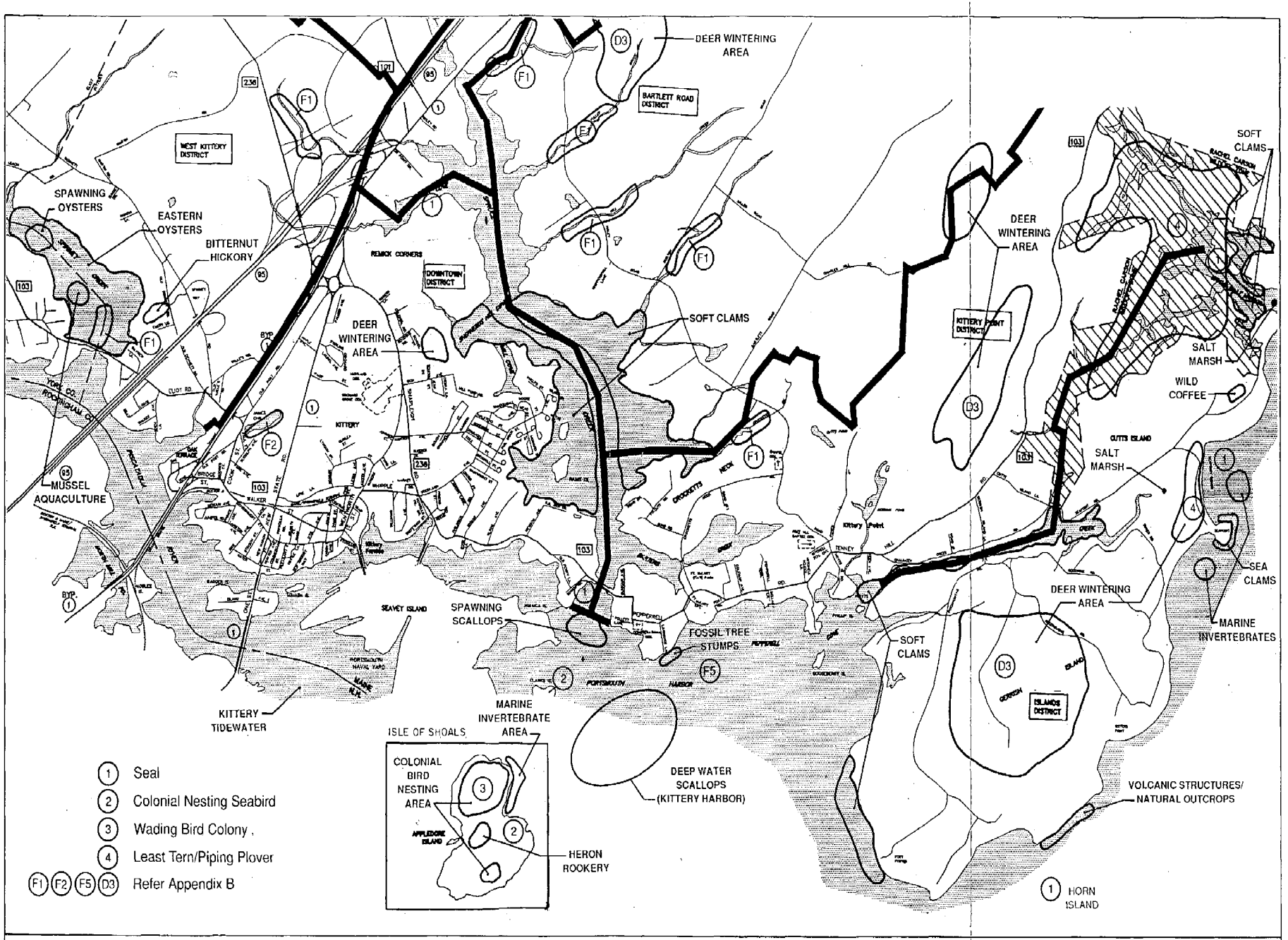

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Figure 2

ENVIRONMENTAL RESOURCES

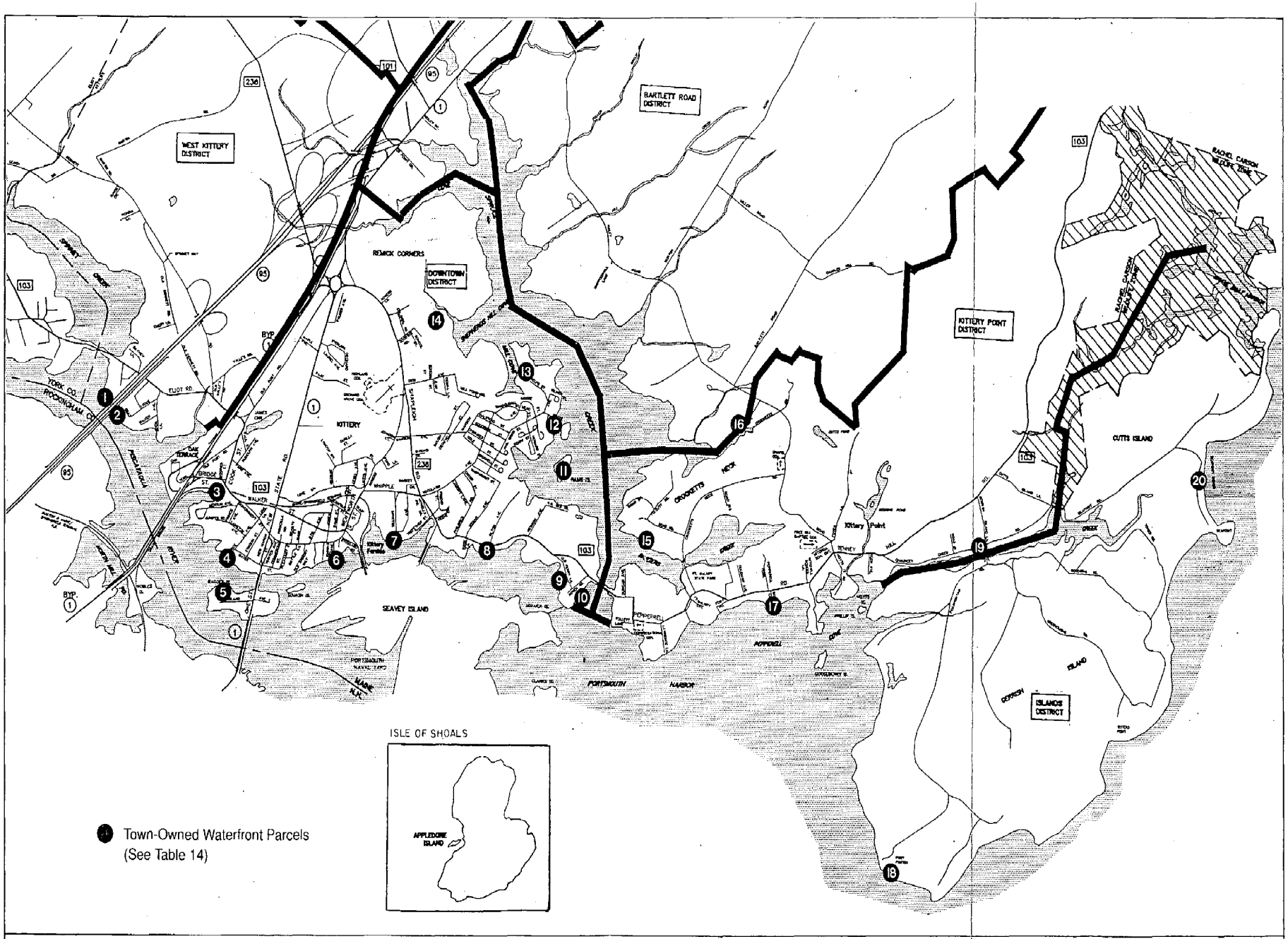

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Figure 3
TOWN-OWNED WATERFRONT PARCELS

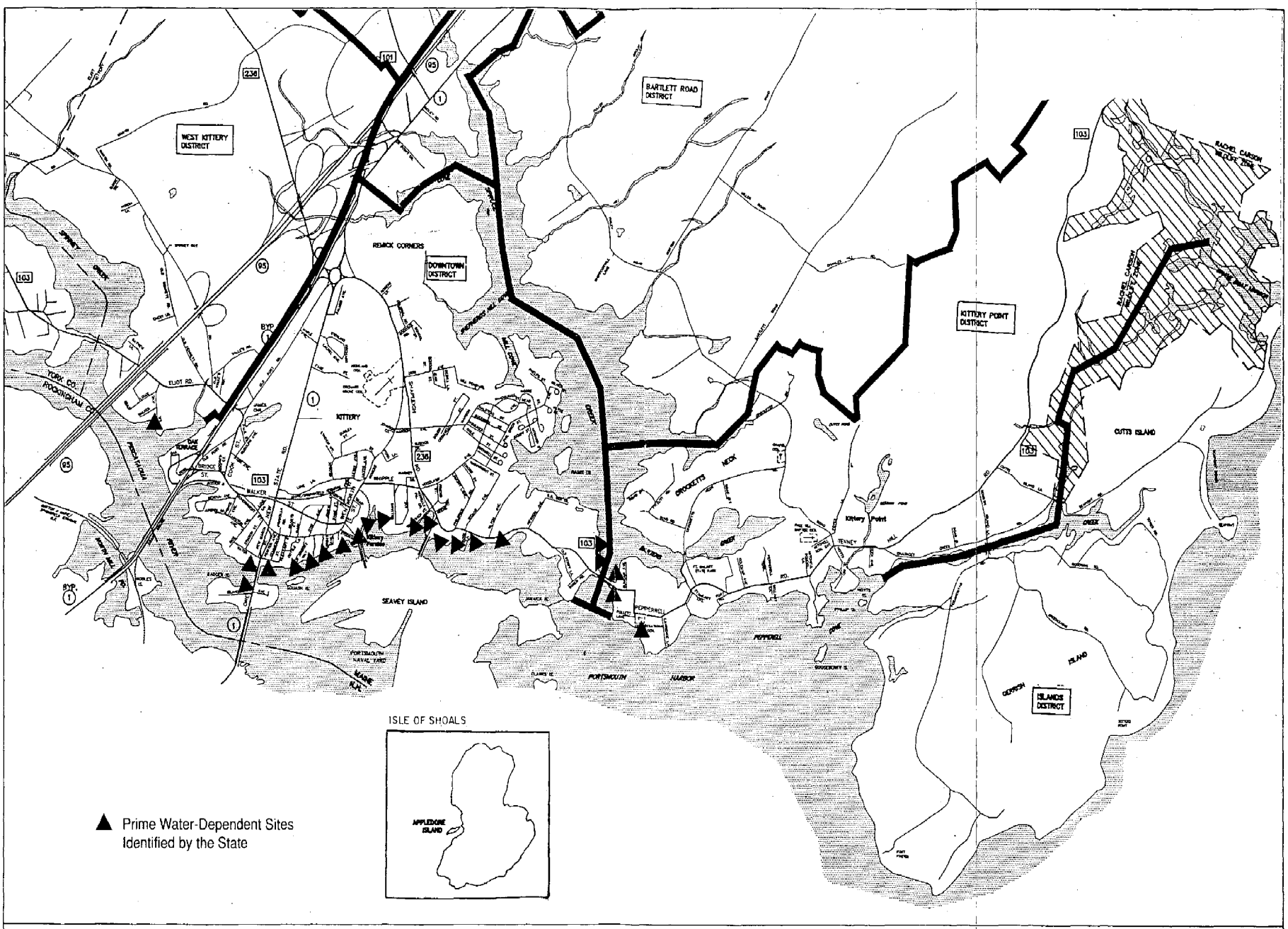

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Figure 4
PRIME WATER-DEPENDENT SITES

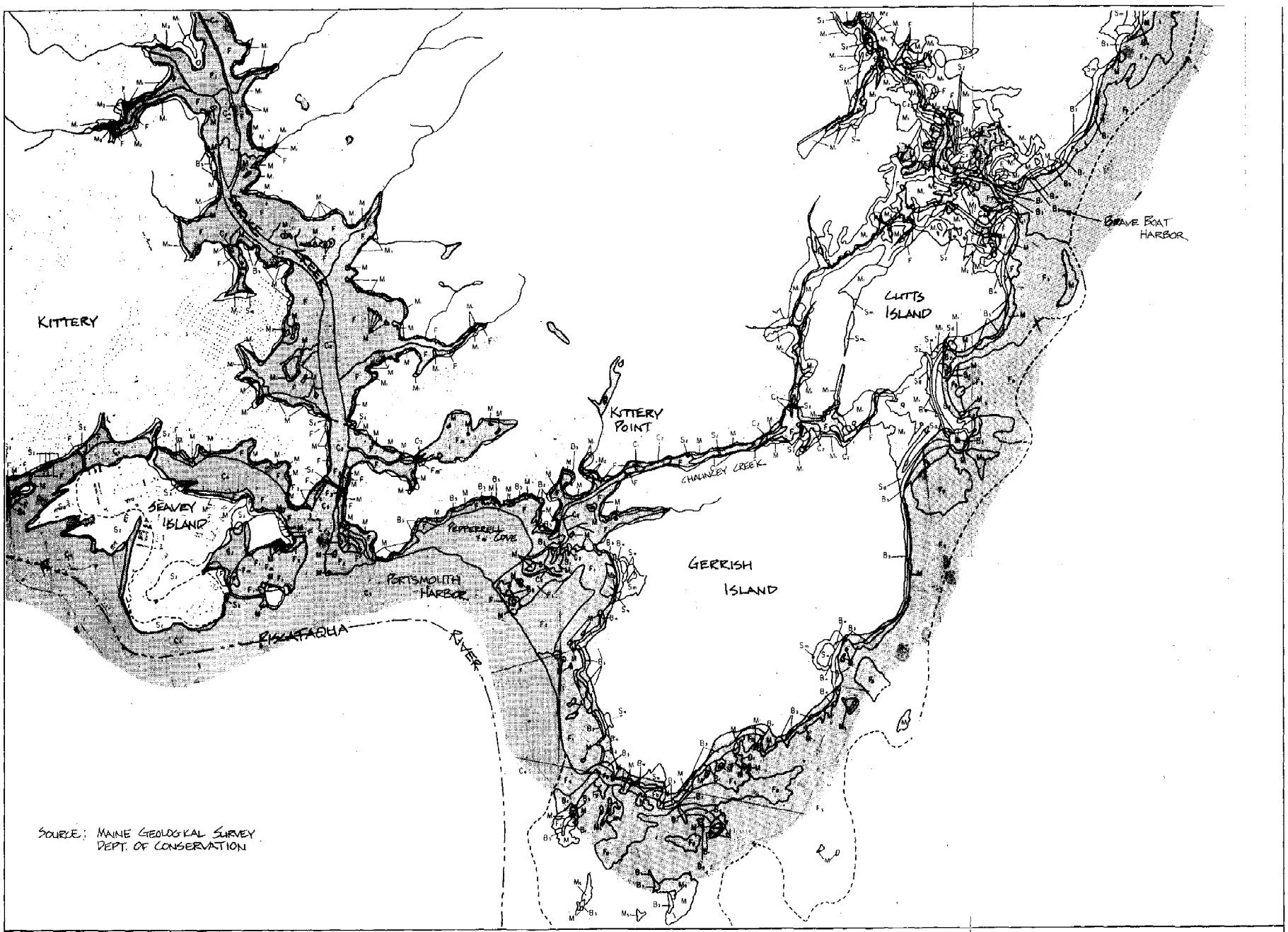

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Figure 5
GEOLOGICAL ENVIRONMENTS

DISTRICT DESCRIPTIONS

West Kittery

Land Use and Development Potential

West Kittery is bordered by Spinney Creek and the Piscataqua River on its southern edge. The Eliot town line and Route 1 Bypass form the eastern and western boundaries respectively.

The district is a mix of residential and commercial uses, with residential development and vacant parcels along the waterfront. A number of homes along Spinney Creek have private piers. There is no commercial waterfront development in the district.

Approximately a third of West Kittery remains undeveloped. About half of this land is zoned for residential use; the other half is zoned commercial. New development in West Kittery has been limited, in part because of the lack of sewer. West Kittery is designated as a growth district in the 1989 Comprehensive Plan.

There are three vacant waterfront parcels in West Kittery. All are zoned for suburban residential use. Two parcels meet all the requirements for development of single residential buildings. There is also a recently approved subdivision of three parcels.

Points of Interest

- Spinney Creek

  Spinney Creek is located just above the I-95 Bridge crossing. It is crossed by a causeway dam and a culvert (about 300 yards above the entrance). The east bank has several private float landings

- Town-Owned Parcels

  Town-owned parcels of .83 acres and 1.99 acres on either side of I-95 (Nos. 1 and 2 on Figure 3) provide attractive waterfront views and could be opened for public access.

Environmental Resources (see Figure 2 and Appendices B & C)

- Spawning Oysters

  An estuarine area used for experimental oyster spawning by the Department of Marine Resources is located in Spinney Creek. There are a few natural American oysters.

- Eastern Oysters

  Eastern Oysters are located in the mouth of Spinney Creek.

- Bitternut Hickory

  Eight to twelve Bitternut Hickory trees are scattered throughout this woodlot located off of Old Dennett Road across from Spinney Way. The Hickories range in size from tiny seedlings, which occur in abundance in the center of the lot, to large trees of about 15 inches. Bitternut Hickory is recognized by its large pinnately compound leaves, sulfur-yellow buds, and fruit husks with winglike ribs.

- Mussel Aquaculture

  Mussell aquaculture is located in the mouth of Spinney Creek.

- Fisheries Habitats

  A fisheries habitat has been identified at the entrance to Spinney Creek. The significance of the habitat can be found in the rating descriptions given in Appendix B.

Recreational Resources

There are no waterfront recreational facilities in this district.

Downtown

Land Use and Development Potential

Downtown, defined as the area between the Route 1 Bypass and the Kittery Point Bridge, is the most densely developed area in Kittery. The area is bordered by Spruce Creek and the Piscataqua River to the north and south respectively. Of all the planning districts, Downtown has the least amount of undeveloped land. Future development will be limited by the availability of vacant land, although redevelopment and expansion are viable development alternatives.

The Wallingford Square area is Kittery's central business district with a mix of personal services, office, retail establishments serving mostly local needs. Residential uses surround the central business district. The immediate waterfront area contains primarily residential uses, densely developed along narrow, steep roads. With the exception of Badger's Island, only three waterfront parcels are developed for commercial uses. These uses include Warren's Lobster Pound in the central Downtown area, a small commercial building adjacent to Town Wharf, and Dion's Yacht Yard, a private boating facility with 42 moorings located near the mouth of Spruce Creek. The Portsmouth Naval Shipyard is located just off the coast in this area, on Seavey Island.

Badger's Island, which is also part of this district, is a mix of residential and commercial uses, with primarily residential uses on the east side; the the commercial uses are primarily on the west side. The Island has a number of water-related or dependent uses , including boat building/marine service businesses and several commercial fishing operations. Several recent development proposals have raised concerns about the appropriate uses for the island; marinas for recreational boaters and condominiums have been proposed.

The Downtown District has 11 vacant waterfront parcels, zoned for urban residential use. Only two of these parcels meet the requirements for development of single-family homes. Local approval for a proposal for a 108-slip marina on Badger's Island, which was awaiting DEP review, has recently been allowed by the developer to lapse. Any new plans for the site would require a new permit application. Kittery Landing, which includes a 24-slip marina, office and residential space, is under construction. Numerous sites along the Downtown waterfront have been designated by the state as Prime Sites for Water-Dependent Uses (see Figure 4).

The Downtown District is designated as a Growth District in the 1989 Comprehensive Plan.

Points of Interest

- Tilton Avenue Property (No. 8 on Figure 3)

  Although there is no formal public access or facilities, this town-owned property is often used by boaters and canoers. Parking is extremely limited; often occurring on Tilton Avenue and Route 103. The property is considered undeveloped.

- Town Wharf (No. 6 on Figure 3)

  The Town Wharf is within the protected area of the Harbor with a thirty by thirty-five foot wharf and float landing. There are approximately 15 moorings in the nearby vicinity and approximately 12 fishing boats. There is no parking available. The wharf is accessed via a paved (fairly steep) driveway with buildings on either side. A few pleasure boats, mostly small, utilize the wharf and moorings. There is electricity available but no other services. This wharf is used for snow dumping in the winter. The property is surrounded by commercial uses.

- Traip Academy (No. 7 on Figure 3)

  The boat launch facility on this property has a paved drive and a dirt/grass area (approximately 50 x 30) utilized for parking. No services are available and lighting is inadequate. There are 15 moorings, primarily used by power craft due to bridge clearance restrictions. Strong currents are sometimes a problem because of tidal flows. The property is surrounded by residential uses.

- Back Channel

  The back channel begins approximately at the Spruce Creek Tributary and ends near Badgers Island. The channel provides good weather protection; depths range from 18-25 feet at MLW. Other than those noted above (Traip, Town Wharf and Tilton Avenue), there are no public boat access or parking facilities provided along the Channel. There are a few landings for small craft and several private wharfs with depths of 8-9 feet at MLW. The Back Channel is used principally by small craft and fishermen due to the rapid

and irregular tidal current influences. It is bordered with primarily residential uses.

- Seavey Island

The Island is home to the Portsmouth Naval Shipyard and Regional Medical Clinic. A regulated navigation area has been established in the vicinity of the Portsmouth Naval Shipyard. The restricted areas are located at the east end of Seavey Island in the cove between Clarks, Seavey, and Jamaica Islands and the west end of Seavey Island from Henderson Point along the shore to the combined highway and railroad bridge across Back Channel. The regulations are as follows:

> *All vessels and other craft, except those under supervision of or under contract to local military or naval authority, are prohibited from entering the restricted areas without permission from the Commander, Portsmouth Naval Shipyard or his authorized representative.*

The Shipyard's control of 150 moorings, available to shipyard personnel only, is a matter of contention with some members of the local boating population. A determination of the Shipyard's jurisdiction over these moorings was not within the scope of this study. Similarly, an analysis of traffic congestion around the Shipyard was also not within the scope of this study. That issue was addressed in the recently completed Comprehensive Plan.

- Other Town-Owned Parcels

A .25 acre parcel surrounding the cemetery on Badger's Island (No.5 on Figure 3) provides views of the Downtown Kittery waterfront.

Rogers Park (No. 14 on Figure 3) is part of the 39-acre parcel which includes the Frisbee School. The parcel, which has nice views of Spruce Creek, is unimproved (except for the area immediately around the school) and receives limited use as a passive recreation area.

The undeveloped town-owned parcel at the foot of Rice Avenue (No. 4 on Figure 3) is 3.5 acres. No formal public access exists. Water depth is extremely shallow. The property is surrounded by residential uses.

<u>Environmental Resources</u> (see Figure 2 and Appendices B & C)

- Kittery Tidewater

Defined by the State as a natural area, this is considered the fastest flowing tidewater on the U.S. Coast and third fastest in the world.

- Deer Wintering

There is a deer wintering yard near Shepherds Hill Cove. The significance of the yard can be found in the rating descriptions given in Appendix B.

- Soft Clams

  Soft clam beds are located in Spruce Creek.

- Fisheries Habitats

  A fishery habitat is located near Old Post Road.

Tidal Environments

- Main Channel

  The channel is an estuarine channel (where ocean and river waters mix).

- Spruce Creek

  The creek is a medium-velocity tidal channel which predominantly consists of mud flats, high salt marsh and ledge. The creek charges up-stream to a estuarine channel with classified low salt marsh.

- Back Channel

  The channel is an estuarine channel with mud flats and ledge.

Recreational Resources

- Town Wharf

  See above.

- Traip Academy

  See above.

- Eagle Point

  Eagle Point is a 25 acre town-owned passive recreation area on the west side of Spinney Creek (No. 13 on Figure 3).

- Ram's Island

  Ram's Island is 2.75 acres of town-owned undeveloped land (No. 11 on Figure 3).

- Badger's Island Marina

  Badger's Island Marina is a privately-owned marina on the south side of Badger's Island with 24 slips, offering electrical, water and parking services.

- Patten Yacht Yard

  The Patten Yacht Yard provides boat repairing, hauling and building services on the south side of Badger's Island. The facility provides no slips or marina services.

- Dion's Yacht Yard

  Dion's Yacht Yard is a privately-owned facility providing boat repair, hauling, brokerage and chandlery services. The yard, located just west of the Kittery Point Bridge on Bowen Road, has approximately seven slips.

Kittery Point

Land Use and Development Potential

Kittery Point is a largely residential area defined by Spruce Creek, Chauncey Creek, Brave Boat Harbor and the Bartlett Road District. With the exception of Lewis Square and Pepperrell Cove, Kittery Point is almost exclusively developed for single-family homes. Lewis Square and Pepperrell Cove are zoned for local business and are characterized by a few small neighborhood-type commercial establishments. Kittery Point has only two waterfront businesses, a small boating supply shop and a restaurant.

Kittery Point, of all the districts, has seen the least development pressure. Almost half of the district remains undeveloped. There are significant areas of open space within the district, many of which are enhanced by their close proximity to one of the many water bodies bordering the district. The Rachel Carson Wildlife Refuge, which encompasses portions of Kittery Point, has helped to protect some of the district's attractive open space. Fort McClary, a state park, is also located in this district.

Kittery Point has 10 vacant waterfront parcels, only one of which meets the requirements for a single family house. The area is designated a Rural District in the 1989 Comprehensive Plan, and the land is zoned for Suburban Residential and Rural Residential use.

Areas of Interest

- Spruce Creek

  Spruce Creek has a narrow, unmarked channel with a depth of approximately 12 feet for about 1.2 miles above the entrance. The existing moorings, which primarily belong to adjacent property owners, are mostly used by power boats due to the low bridge clearance. Spruce Creek is lined with residential development and vacant parcels, with commercial development around Route 1.

- Pepperrell Cove (No. 17 on Figure 3)

  Pepperrell Cove is the primary mooring facility. This waterfront area hosts a restaurant, the Pepperrell Yacht Club and the Harbor Master's Office.

There is a public wharf area and float landing (12 feet at MLW reported alongside) just west of Pepperrell Cove; full provisions are available. Electricity and water are also available. The public restroom facilities have been taken out of service due to a faulty septic system. There is no pumpout facility for boats. There is a small craft launching ramp alongside the wharf. Winter storage for floats is limited. Day parking is provided for approximately 25 cars. Both commercial and recreational boaters utilize the facility. The cove has 265 moorings; the majority used by pleasure boaters during the boating season. There are 45 seasonal fishermen and 20 year round fishermen operating out of the Cove. The cove depth is generally 7-11 feet at MLW. Pepperrell Cove is surrounded by residential uses with a few commercial uses.

- Chauncey Creek

  This area is used extensively by small craft. The creek is crossed by an overhead power cable (reported clearance 40 feet) and a fixed bridge. Chauncey Creek is lined with residential use.

Environmental Resources (see Figure 2 and Appendices B & C)

- Spawning Scallops

  Spawning scallops are found at the mouth of Spruce Creek where it enters Portsmouth Harbor. Commercial harvesting has taken place in recent years.

- Fossil Tree Stumps

  2000 to 3000 year old fossil tree stumps are located in the intertidal area near Pepperrell Cove.

- Deer Wintering Area

  There is a deer wintering area near Brave Boat Harbor.

- Deep Water Scallops

  There are deep water scallop beds near Pepperrell Cove.

- Seal Haul Out

  Maine has the largest population of harbor seals of any Atlantic state, and supports the only significant breeding population in the eastern United States. A seal haul-out has been identified in the mouth of Spruce Creek.

- Fisheries Habitats

  Fisheries habitats have been identified in Crocketts Brook and Pepperrell Cove.

Tidal Environments

- Pepperrell Cove

  The cove consists of fine-grained conditions. Ledges and low-energy beaches make up the intertidal environments. (Intertidal environments consist of the area between the highest high water datum and the lowest low water datum subject to twice daily tidal flooding and all other marine forces.)

Recreational Resources

- Pepperrell Cove

  See above.

- Fort McClary

  Fort McClary is a 27.5 acres State Park used for passive recreation.

- Frisbees Yacht Club

  This privately-owned yacht club at Pepperrell Cove provides gasoline, diesel oil, water ,ice and a launch service at the float, and has toilet and shower facilities.

The Islands

Land Use and Development Potential

The Islands District, comprising Gerrish and Cutts Islands, is characterized by scattered residences and large areas of undeveloped land. Chauncey Creek borders both islands to the west, separating them from the mainland. The Atlantic Ocean borders the islands to the east. Cutts Island is the location of most of Kittery's summer homes. There is no waterfront commercial development in this district.

Wetlands and other coastal resources are prevalent on both islands. The Rachel Carson Wildlife Refuge occupies a large portion of this district; there are plans to acquire an additional 278 acres to expand this conservation area.

Gerrish and Cutts Islands provide public access to the water for both residents and non-residents. Fort Foster on Gerrish Island, and Seapoint and Crescent Beaches on Cutts Island are popular recreation sites.

The Islands District has 22 vacant waterfront parcels, nine of which meet the requirements for development of single-family residential units. The district is designated as a rural district in the 1989 Comprehensive Plan and is zoned for Rural Conservation with a two-acre minimum lot size.

There is only one new development on the islands; site work has recently been completed on a ten-lot subdivision on Gerrish Island.

Areas of Interest

- Fort Foster (No. 18 on Figure 3)

  Fort Foster is an 89-acre town-owned recreational facility with heavily used beach and picnic areas. The park has a long pedestrian pier and the partially submerged ruins of another pier about 100 yards to the north. The area between the two piers is used as a bathing beach; boaters either beach their craft or anchor off-shore. The park is accessed via a 2-lane road on the west side of Gerrish Island. There are no services (i.e. water or electricity) provided to the existing pier; picnic tables are available in the park. There are no moorings and fairly shallow water - 4 to 5 feet at MLW - at the existing pier.

- Seapoint Beach (No. 20 on Figure 3)

  Seapoint Beach is considered a highly sensitive area because of the high variety of marine invertebrates and its extensive salt marsh. The area, which has spectacular ocean views, is used as a recreational and educational facility. Parking at this site is very limited; much of the parking area is reserved for Kittery residents.

- Brave Boat Harbor

  The Harbor is used primarily by local small craft and there are a few private landings. There are no facilities provided. The surf is sometimes a problem and is reported to break clear across the entrance with the least amount of weather disturbance.

- Isles of Shoals

  The Isles of Shoals are approximately 5-6 miles offshore and consist of a group of eight main islands and a number of islets, rocks, and ledges. The isles are frequented by fishermen and summer visitors with very few winter inhabitants. The Town has jurisdiction over the Islands of Cedar, Smuttynose, Malaga, Appledore, and Duck. The boundary between Maine and New Hampshire passes through the center of Gosport Harbor, and between Star and Cedar Islands. A brief description of Gosport Harbor and the Town's islands follows:

  Gosport Harbor

  The Harbor is formed by breakwaters joining Star, Cedar, Smuttynose, and Malaga Islands. It is used as an anchorage by local fishermen and yachts. The Harbor offers protection from all but westerly winds. The breakwaters are maintained by the Army Corps of Engineers. The one between Star and Cedar Islands was recently rebuilt; the one between Cedar and Smuttynose Islands is breaking down and will eventually need to be rebuilt.

  Bottom conditions are reported to be rocky and caution is required in strong winds. There are several channels leading into Gosport Harbor; most are deep and clear. Between Appledore and Smuttynose, channel depth is approximately 20 feet. There are several ledges surrounding the Isles, including Cedar Island Ledge, Anderson Ledge, Halfway Rocks, Square Rock

and Appledore Ledge. Most are well marked with cover ranging from 2 to 6 feet.

Cedar, Malaga, Duck and Smuttynose Islands

Nine-acre Cedar Island has four privately-owned houses on it; Smuttynose has three. A cove is formed by a stone breakwater joining Smuttynose to Malaga. It is recommended that boats with a draft greater than one foot avoid the cove due to uncharted rocks. Boats lie aground at low water and there are no piers or moorings. The 8.5-acre Duck Island, owned by the Star Island Corporation, is surrounded by ledge.

Appledore Island

Seventeen-acre Appledore Island was previously a Coast Guard station; it currently has ten separate owners. There is an old observation tower, several radio towers, and five abandoned houses. Cornell University and the University of New Hampshire lease much of the Island and maintain a small wharf and picnic grounds as part of the Shoals Marine Lab. Landings can be made in a small cove on the west side of the Island.

Environmental Resources (see Figure 2 and Appendices B & C)

- Soft Clams

  Soft clam beds are located near Brave Boat Harbor, the west side of Gerrish Island and Chauncey Creek.

- Deer Wintering Area

  Deer wintering areas are located near Brave Boat Harbor, in the center of Gerrish Island, and along Seapoint Beach.

- Volcanic Structures/Natural Outcrops/Explosion Breccia

  The shoreline exposure of Breccia on Gerrish Island is important because it records the sequence of events of the Breccia formation. The Breccia includes fragments of Felsic and Basil metamorphosed volcanic rocks and basaltic dikes all jumbled together with random orientation of foliation and bedding. This site is of educational and scientific value and merits preservation for further study.

- Sea Clams

  Sea clams can be found off Seapoint Beach.

- Marine Invertebrate Area

  Appledore Island is one of eighteen significant high diversity marine invertebrate sites on the Maine Coast. The Shoals Marine Lab of Cornell University conducts a summer program in marine sciences here.

- Sea Point Marine Invertebrate Area

  Sea Point is one of 18 documented high diversity marine invertebrate areas on high energy rocky shores on the Maine Coast. It is included on the State's natural areas register because of the high variety of species present and because it is a prime location for educational studies and marine research.

- Sea Point Saltmarsh

  Seapoint Beach has an extensive saltmarsh, a rocky beach and intertidal tree stumps, with approximately 2000 feet of ocean frontage. The land is privately owned but managed by the Town to provide for public swimming and picnicking.

- Brave Boat Harbor Saltmarsh

  Brave Boat Harbor has a large, very shallow saltmarsh with little development; access is difficult. The saltmarsh has the only unpolluted clam flats in the area, but green crab, which is detrimental to clams, has recently emerged. Snowy egrets and cormorants are also found in the area.

- Kittery Wild-Coffee

  On the northeastern end of Cutts Island a large, robust population of the rare orange-fruited horse-gentian thrives in a shallow, wooded gully. Orange-fruited horse-gentian, also know as wild-coffee, is found growing in rich, moist woods and alluvial thickets in Cape Breton to Western Ontario, Minnesota, South and North Carolina, Kentucky, and Kansas. It is also considered rare in New Hampshire, Georgia, Iowa and Nova Scotia. In Maine there are only two stations currently known and only five others historically recorded.

- Colonial Nesting Seabird Islands

  Between three and four thousand islands and exposed ledges occur along the Maine Coast. Three hundred and fifty of these are of special significance because they are used as traditional sites by twenty species of colonial-nesting seabirds. Colonial nesting seabirds are located on Clarks Island and Appledore Island.

- Least Tern and Piping Plover Nest Sites

  The least tern and piping plover both nest along the Atlantic Coast on sandy, coastal beaches. Both are rare and their populations have been declining in recent years. They have been identified near Brave Boat Harbor and on Seapoint Beach.

- Wading Bird Rookeries

  The wading bird rookeries on Appledore Island consist of great blue herons and other wading birds, such as snowy egrets, glossy ibis, black-crowned night herons, tri-colored herons, and little blue herons. The stately great blue heron is the largest and most well-known of Maine wading birds.

- Seabird Nesting Area

  A large multi-specied heronry is located on Appledore Island. The northern end of the island, where the heronry is located, is heavily covered with a dense growth of shrubby trees of common winterberry, holly, black chokeberry, shadbush and chokecherry. It is one of six multi-specied heronries in Maine. The snowy egret and glossy ibis are relatively new breeding species in Maine and are at the northern extreme of their breeding range in Southern Maine. The black-crowned night heron has suffered a dramatic decline within the past forty years and now breeds on only eight of Maine's coastal islands. The Appledore Island heronry is included in the natural areas register because of its importance as a breeding site for three unusual species of waders in Maine.

- Seal Haul-Outs

  Seal haul-outs have been identified in Brave Boat Harbor, at Seapoint Beach, and near Horn Island.

Tidal Environments

- Chauncey Creek

  Chauncey Creek is a medium to high-velocity tidal channel with mud flat conditions and a high salt marsh environment near Cutts Island.

- Gerrish Island Shoreline

  The shoreline consists of a variety of environments. In the subtidal environment there is the seaweed community, and the lower and upper shoreface. (Subtidal environments are those existing below lowest low water and subject to tidal current forces and wave-generated current forces.) The intertidal environment consists of seaweed-covered coarse flats and coarse-grained flats, gravel and mixed sand and gravel beaches, boulder ramps and ledge. Fresh-brackish water and marsh make up the supratidal environment. (Supratidal environments are those located just above the highest high water datum, but under the partial influence of marine processes and forces.)

- Brave Boat Harbor

  Brave Boat Harbor is a medium-velocity tidal channel with high and low salt marsh and mud flats. Washover flats and fresh-brackish marsh are along the edges.

Recreational Resources

- Seapoint Beach

  See above (4.5 acres).

- Fort Foster

  See above (88.9 acres).

- Wood Island

  1.25 acre unimproved town-owned island with former lifeboat station; used for passive recreation.

- Rachel Carson National Wildlife Refuge

  Passive recreation and wildlife management area.

MOORINGS

Existing Moorings

There are approximately 394 existing moorings (not including the approximately 42 allotted to Dion Yacht Yard) located throughout Kittery's harbor. Moorings are permitted throughout the Town based on availability criteria defined in the Harbor Ordinance (Appendix D). Mooring distribution, by location, is shown below(see Appendix G for plan of existing moorings):

Table 1: 1989 Mooring Locations

Location		Number	Percentage
1-99	Pepperrell Cove (West)	45	11%
100-250	Pepperrell Cove (Northwest)	88	22%
250-399	Pepperrell Cove (Southwest)	103	26%
400-499	Spruce Creek	30	8%
00-599	Chauncey Creek	26	7%
600-699	Back Channel/Traip	66	16%
700-799	Badgers Island	15	4%
800-899	Main Channel	16	4%
900-999	Isle of Shoals	6	2%
1000-1042	Dion Yacht Yard	NA	NA

The Town also maintains a mooring waiting list. Applications, available from the Harbor Master and reviewed annually, are required for assignment to the mooring waiting list. The list is currently composed of 185 names. The number of moorings available each year for waiting list members is small and primarily due to attrition. Pepperrell Cove, which is the primary boat mooring area, is at capacity under current mooring management practices.

In 1989, approximately 35 moorings were allocated to individuals on the waiting list. In the previous years of 1987 and 1988, this number was considerably less (5 reported). The large increase in 1989 mooring allocations resulted from strict enforcement of the mooring regulations. Many mooring licenses were not renewed, thereby increasing allocation to those on the waiting list. Boat owners are required to renew their mooring permit applications (and the associated fee) annually to

ensure that the waiting list is kept up to date. Assuming an average of 5 mooring allocations per year, the current waiting period is in excess of 10 years.

By comparison the Portsmouth Yacht Club has approximately 100 names on the waiting list with an estimated wait of 7 years. On the Portsmouth side of the harbor, comparisons include Harts Cove with 97 names on the waiting list and an estimated wait of eight years and Little Harbor with 281 names and an estimated wait of eleven years.

The boats on the 1989 mooring and waiting lists have been classified by size for use in developing objectives for the provision of additional moorings:

Table 2: 1989 Mooring List Boat Size

Boat Sizes	% of Total Vessels
7'-10'	2%
11'-15'	12%
16'-20'	21%
21'-25'	19%
26'-30'	21%
31'-35'	12%
36'-40'	10%
40' +	3%

Table 3: 1989 Mooring Waiting List Boat Size

Boat Sizes	% of Total Vessels
4'-10'	1%
11'-15'	4%
16'-20'	16%
21'-25'	26%
26'-30'	36%
31'-35'	9%
36'-40'	8%

The breakdown of vessel types for waiting list applicants is shown on the following table:

Table 4: 1989 Mooring Waiting List Boat Type

Type of Boat	Number of Boats	% of Total Vessels
Sailboats	124	76%
Power Boats	22	13%
Lobster Boats	4	2%
OB	9	6%
Dory	3	2%
Skiff	1	1%
N/A	22	--

A breakdown of resident/non-resident boat owners for both the waiting list and 1989 mooring list is shown below:

Table 5: 1989 Resident/Non-Resident Boat Ownership

	Mooring List	Waiting List
Resident	71%	35%
Non-Resident	29%	65%

In order to provide a sense of predominant use and type of vessel for boating activities in the area, watercraft registrations for boats registered in Kittery were broken down by the type of vessel and stated use. It is important to note that boats may be registered in Kittery and owned by non-residents.

Results of this review are shown on the following table:

Table 6: Watercraft Registration in Kittery As of 11/30/88

Type	(%)
Open Hull	73
Cabin	8
Sail	11
Canoe	5
H-Boat	0
Other	3
Use	**(%)**
Pleasure	87
Commercial Fishing	12
Commercial Passenger	0
Rent	0
Dealer/Manufacturer	0
Other	1

Mooring Demand Projections

Based on the 1989 figures of 394 moorings and a waiting list of 185, the following mooring demand projections were developed using three different methodologies. A more detailed discussion of the methodologies used can be found in Appendix F.

Table 7: 1995 Mooring Demand Projections

Boat Size (FT)	Percent of Moored & Waiting*	Moorings by Size** Method 1	Method 2	Method 3	Average
7-10	2%	14	13	12	13
11-15	10%	70	64	60	65
16-20	20%	139	128	119	129
21-25	20%	139	128	119	129
26-30	25%	167	154	143	155
31-35	11%	76	71	66	71
36-40	10%	70	64	60	65
40+	2%	14	13	12	13
Total	100%	695	641	596	640

Method 1 based on figures from National Marine Manufacturers (3.81% annual growth: 914 registered boats).

Method 2 based on Maine Registration figures (2.43% annual growth: 844 registered boats).

Method 3 based on Kittery population/registration figures (1 boat/15 people: 784 registered boats).

* Assumes % of boats in each category will be the same in 1995 as it was in 1989. Percent of boats in each category is based on mooring list and waiting list.

** Assumes mooring demand represents 76% of boats registered, based on the current ratio.

Demand projections could not be made based on historic growth trends in mooring applications for the town of Kittery because of the lack of available information.

Because of the high regional population growth rate in southern Maine and New Hampshire, mooring demand may in fact be somewhat higher in the future than indicated by these projections. These projections were prepared using techniques recommended in the Mooring Plan Handbook (Maine Department of Economic and Community Development Office of Comprehensive Planning, October 1989).

ORDINANCES

The Town's Harbor is governed by the Kittery Harbor Port Authority, Rules and Regulations Pertaining To The Harbor, Port and Channels Within The Town. These regulations apply to boats, boating and the use of waters within the Town. A copy of this ordinance is included in Appendix D. Included in the Appendix E are rules and regulations governing the Portsmouth side of the Harbor.

The Town's mooring permit fees are shown below. Kittery receives approximately $68,000.00 in revenue (mooring fees and excise tax from boat registration) for the fiscal year. Appropriations are approximately $70,000.00. Fee comparisons are provided for a number of other Maine coastal communities and marinas.

Table 8: 1989 Mooring Fee Comparison

- Town of Kittery

  $5.00/ft. - Non-Resident ($100. Min.)
  $1.00/ft. - Resident ($20. Min.)

  * Plus State Excise Tax

- Town of Freeport

  No Fee - Riparian
  $20.00 - Resident
  $130.00 - Non-Resident/Commercial
  $60.00 - Marina/Commercial

  * Plus $20.00 User Fee

- City of Portland

  $25.00 - Resident
  $50.00 - Non-Resident

- Town of Yarmouth

  $25.00 - Resident
  $? - Non-Resident

- Town of Biddeford

  $50.00 - Resident
  $250.00 - Non-Resident

- New Hampshire

  $3.00/ft. - ($24.00 Min.)
  $5.00/ft. - (Commercially leased or rented moorings at marinas and yacht clubs)

- Handy Boat

  $1000.00 - $2000.00 Membership
  $50.00 - Non-Resident
  $10.00 - Resident
  Approximately $725.00 - Parking Facilities, etc.

- Yarmouth Boat Yard

  $500.00 - Per Season
  $50.00 - Non-Resident
  $10.00 - Resident

- Badger's Island Marina

  $89.00/ft. - Summer
  $29.00/ft. - Winter

SECTION III:

GOALS AND OBJECTIVES

GOALS AND OBJECTIVES

Discussions at both Advisory Committee and Public Meetings highlighted the fact that the residents of Kittery are proud and fond of the waterfront. The discussions indicated a strong sentiment that people wanted to maintain much of the existing character and development patterns along the waterfront. Concern for the environment was apparent, and the desire to increase public access to the waterfront was stressed. Residents were interested in protecting the waterfront from over development. Agreement on the need to preserve the fishing industry was also expressed. The following goals and objectives were developed as a result of these discussions.

ENVIRONMENTAL GOALS

GOAL 1: To preserve environmental resources

Objectives

- Maintain or enhance natural/critical areas by proper land and water use
- Encourage good management practices for protection of the wildlife habitat
- Encourage creative land development for conserving natural/wildlife habitat areas
- Continue strict controls of resource protection areas
- Ensure recreational areas co-exist with the environment
- Preserve Seapoint Beach as existing
- Preserve Appledore Island as existing
- Promote education concerning environmentally sound use of the waterfront

GOAL 2: To preserve/improve water quality

Objectives

- Improve shellfishing opportunities for both commercial and recreational activity
- Reduce or eliminate problems caused by inadequate sewage disposal
- Reduce non-point sources of pollution

- Encourage better management at boating, marinas and boatyards
- Encourage special water protection standards for new development
- Encourage better agricultural management practices
- Encourage methods of recycling and proper waste disposal
- Improve water quality in Spinney and spruce Creeks
- Improve non-commercial shellfishing in Spruce Creek
- Open Brave Boat Harbor to recreational clamming
- Create joint committee between towns to clean up the River

RECREATION GOALS

GOAL 3: To preserve and increase public access to the waterfront for non-boating recreational uses

Objectives

- Examine potential for increased recreational development/use of existing recreation facilities
- Provide for development of public access as part of private developments in appropriate locations
- Evaluate recreation/access potential of all existing Town-owned waterfront property including Wood Island, Isles of Shoals and Rogers Park
- Assess alternatives for increasing parking at public recreation areas
- Provide some measure of priority access for local residents and/or tax payers to recreational facilities
- Preserve Fort Foster and Seapoint Beach as non-boating areas
- Evaluate the present use of Fort Foster in terms of fees, hours and season
- Promote the continued use and care of Fort McClary State Park

RECREATIONAL BOATING GOALS

GOAL 4: To increase and improve facilities for recreational boating

Objectives

- Develop a mooring plan which makes the most efficient use of available mooring area
- Provide additional boat launching facilities which could be used at all tides
- Provide adequate parking at existing launching /access facilities
- Evaluate use of user fees to fund improvements to existing facilities and/or creation of new facilities
- Improve Kittery Wharf for recreational boating
- Promote public knowledge of available mooring areas

GOAL 5: To ensure safety of boaters and other waterfront users and compatibility of boating with other recreational activities

Objectives

- Maintain navigable channel
- Regulate/enforce boat traffic with regard to type, speed, wake
- Regulate anchorage near public beaches

COMMERCIAL FISHING GOALS

GOAL 6: To encourage and promote commercial fishing activity

Objectives

- Provide basic facilities (fresh water, hoists, storage, parking, etc.) for commercial fishermen
- Preserve space for commercial uses at town owned wharves
- Encourage retention of privately-owned fishing-related dock as such through tax incentives, purchase of development rights, etc.
- Continue to provide and maintain ingress and egress points to the water for local fishermen.
- Continue to provide preferential docking and moorings for commercial fishing boats

- Encourage year round waterfront facilities usage
- Encourage easier and more efficient usage of waterfront facilities
- Provide facilities for winter fishing
- Improve Kittery Wharf for commercial fishing use

LAND USE AND DEVELOPMENT GOALS

GOAL 7: To encourage the continuation of Kittery Harbor as an active working waterfront in the downtown area

Objectives

- Provide for the development of water dependent/water enhanced uses at appropriate locations
- Encourage retention of fishing-related uses along the waterfront

Recommendations

- Zoning: water-dependent, water-related uses

GOAL 8: To ensure that development of waterfront land is consistent with the goals of preserving natural/critical areas, improving public access to the waterfront, preserving views to the waterfront and preserving/ increasing water dependent/enhanced uses

Objectives

- Create zoning regulations which protect shoreline
- Protect views to waterfront
- Provide for development of public access as part of private developments in appropriate locations
- Control development of any dock, slip, or marina through zoning to ensure that additional mooring space is consistent with waterfront goals including maintenance of scenic character
- Restrict building along shorelines in non-sewered areas
- Strengthen and enforce existing code for setbacks, overboard discharge, underground storage tanks, etc. for new and existing development
- Protect existing shoreline through restriction and regulation of clear cutting and building site locations

GOAL 9: To increase funding capacity for waterfront projects

Objectives

- Encourage dedicated funding for water-related improvements
- Provide incentives for private investment in public improvements
- Assess the feasibility of charging ships for passage through Kittery waters

SECTION IV:

RECOMMENDATIONS

RECOMMENDATIONS

The following recommendations were developed to provide the means for achieving the goals and objectives detailed in the previous section. These recommendations were discussed in depth with both the Advisory Committee and at a Public Meeting to ensure that they were both implementable and the most appropriate means for accomplishing specific goals. Although most of the recommended actions can stand alone, effecting positive results if implementation of other recommendations is stalled, they are all designed to be complementary and will be most effective when implemented in their entirety. Those recommendations which are reliant on implementation of others are noted.

Following the discussion of each of the recommended actions is a detailed discussion of shoreland zoning recommendations, a Capital Improvements Plan and two implementation schedules, one organized by goal, and one organized by responsible party. These tables will provide a means for tracking implementation. The success of this plan will lie in the ability of the various responsible parties to cooperate in ensuring that the recommended actions are taken in a timely manner.

GOAL 1: TO PRESERVE ENVIRONMENTAL RESOURCES

1.1 **Encourage protection in the area surrounding the Bitternut Hickory and Wild Coffee.**

Protective measures for these rare plant species may include education of property owners and informational signing.

Responsible Party: Conservation Commission

Date of Completion: 12/90

1.2 **Delineate the Resource Protection Zone as shown on the attached map to provide maximum protection for critical resources.**

(For ordinances regarding land uses and development standards, see Zoning Recommendations.)

The purpose of the zone is to clearly establish areas in which the protection of critical and natural resources is a priority. The resources to be protected are the following:

- Salt marshes at Seapoint Beach and Brave Boat Harbor.

The values of salt marshes are the following:

- Salt marshes and associated waters are spawning and nursery grounds for over two-thirds of our commercial and recreational marine fishes.

- Salt marshes are highly productive, producing up to ten tons of organic matter per acre per year, and are a major contributor fueling estuarine food webs.

- Salt marshes act as a barrier against storms significantly reducing shoreline erosion by absorbing floor waters and attenuating wave action.

- Salt marshes improve water quality by removing suspended solids, excessive nutrients and pollutants from overlying waters.

- Salt marshes are utilized by many waterfowl and shorebirds for feeding, resting and nesting.

- Salt marshes have high scenic value and provide many recreational opportunities.

- Fossil Tree Stumps at the intertidal area near Pepperrell Cove.

- Volcanic Structures/Natural Outcrops/Explosion Breccia along the shoreline of Gerrish Island.

- Marine Invertebrate Area at Seapoint Beach.

- Seabird Nesting Area at Appledore Island.

- Spawning Oysters at Spinney Creek.

Critical/Natural areas are a highly significant part of our natural heritage. They provide important opportunities for general natural history education, serving as museums and classrooms for student groups, conservation organizations, outdoor clubs, and individuals. Areas with particularly good specimens of plant or animal species, or with populations of unusual species, provide "Breeding Stock", thus helping to maintain diversity and stability in the natural system. The State Policy states, "Protect and manage critical habitat and natural areas of state and national significance and maintain the scenic beauty and character of the coast, even in areas where development occurs".

Responsible Party: Planning Board

Date of Completion: 12/91

1.3 **Update and strengthen the ordinances regarding use of land within the Resource Protection Zone to comply with new state guidelines.**

Compliance with these state guidelines by the end of 1991 is mandatory. (See Zoning Recommendations)

Responsible Party: Planning Board

Date of Completion: 12/91

1.4 **Establish adequate resource management guidelines for Smuttynose, Malaga, Cedar, Squash and Duck Islands.**

These recommended guidelines, established to encourage appropriate use of environmentally sensitive resources, include:

- From April 1 to August 15, human use of the islands should be discouraged. Activities around the islands should be conducted far enough off shore to prevent flushing birds from nests (approx. 1/4 mile).

- Limited construction should only occur after review and approval by a Maine Department of Inland Fisheries and Wildlife (MDIFW) wildlife biologist.

- In general, low intensity recreational use, such as picnicking and hiking, can be permitted outside the nesting season.

- Building of fires should be prohibited at all times.

- Minimize the potential for involvement with major oil spills. Siting of major marinas and oil tanker shipping lanes should avoid important seal haul-out areas.

- Develop a brochure which provides an explanation of current rules and ordinances for island usage as well as "tips" for minimizing human impact on the natural resources. This brochure should be available for distribution through both Town and Port Authority officials.

The islands provide nesting areas for colonial marine birds and also feeding and resting areas for migratory shorebirds. The most important factors governing the continued presence of coastal nesting are the availability and abundance of undisturbed nesting habitat and undisturbed, uncontaminated feeding areas. Human disturbance of a nesting colony can cause 1) abandonment of the entire colony; 2) mortality of eggs and young from predation (gulls, ravens, eagles) and exposure; and 3) starvation and predation of young that leave the nest before they are able to fly (adults will not feed young on the ground).

Seals use the islands for resting and whelping which is necessary for the survival of both adults and young. These specific sites are important because of their proximity to high quality feeding areas, combined with a lack of human disturbance. Human disturbance and contamination from oil spills are the primary threats to seals at haul-outs. Curious boaters approaching too close to haul-out seals, or actually landing on the islands and ledges, will force seals to flee into the water. Young pups can easily become permanently separated from their mothers, resulting in death by starvation. Curious pups are also slow to avoid boats, and are therefore vulnerable to injuries from boat propellers.

The hazards to marine mammals from oil spills are well documented. Ingestion of petroleum products and oiling of fur can cause death.

Responsible Party: Conservation Commission/Harbor Master

Date of Completion: 6/91

1.5 **Encourage environmentally sensitive use of Gooseberry, Fishing, Wood, Whaleback, White and Horn Islands**

These islands are less sensitive than those listed above in 1.4, but should be mentioned in educational brochures.

Responsible Party: Conservation Commission/Harbor Master

Date of Completion: 6/91

1.6 **Establish resource management guidelines to preserve Seapoint Beach.**

These guidelines should include commentary on the following:

- Discouraging human activity greater than existing levels July through September (peak migratory season).

- Encouraging educational programs for residents with brochures, newspaper articles, public meetings, etc. explaining the problems and significance of the area.

- Protecting shore birds by alerting users to the presence of nesting birds in the saltmarsh and migratory birds on the beach.

- Supporting the maintenance of existing parking space availability and encouraging enforcement of current parking restrictions.

Additional protection at Seapoint Beach is warranted based on the diversity of resources present: 1) Shorebird Roost Sites; 2) Salt Marsh; 3) Seal haul-out; 4) Sea Clams; and 5) Deer Wintering areas. The importance of each of the resources is discussed in detail in Recommendation 1.2.

Responsible Party: Conservation Commission

Date of Completion: 12/90

1.7 **Revise Seapoint Beach rules to prohibit dogs on the beach between 9 AM and 5 PM from July through August. Dogs will be prohibited from the saltmarsh at all times.**

Limiting the times when dogs are allowed on the beach will minimize conflicts with other users.

Responsible Party: Conservation Commission/Town Council

Date of Completion: 12/90

1.8 **Establish and maintain regular contact with Star Island Corporation, notifying them of changes in zoning, environmental issues, etc.**

This contact will help to ensure that Appledore Island continues to be used in an environmentally sound manner, consistent with the Town's concern for the Island. The Shoals Marine Lab on Appledore Island, run by Cornell University and the University of New Hampshire, is a source of significant

expertise on the island environment; this expertise should be utilized as appropriate.

Responsible Party: Town Manager

Date of Completion: 12/90

1.9 **Establish stringent enforcement policies for the following activities:**

- Overboard discharge from boats and waste dumping
- Illegal parking at recreational areas
- Other waterfront ordinances

Responsible Party: Police Department/Harbor Master

Date of Completion: 6/90

1.10 **Manage public improvement projects to protect natural/critical areas.**

Guidelines should include the following:

- Direct water, sewer, and road improvements away from natural/critical areas.
- Inform all parties involved with public improvements about the effects of road salt, run-off, chemical spraying, and other similar activities.
- Inspect construction related projects regularly.

Responsible Party: Town Manager

Date of Completion: 12/90

1.11 **Embark on an education program to show builders, developers and shoreland residents how they can act to reduce phosphorous build-up.**

Phosphorous comes from lawn fertilizers, manure, septic systems, parking areas, spilled gasoline and household cleaners and detergents.

Responsible Party: Conservation Commission

Date of Completion: 6/91

1.12 **Maintain Gooseberry, Fishing, Wood, Whaleback, White, Horn, Smuttynose, Malaga, Cedar, Squash and Duck Islands as Resource Protection Zones.** (See Draft Zoning)

Responsible Party: Planning Board

Date of Completion: 12/91

GOAL 2: TO PRESERVE/IMPROVE WATER QUALITY

2.1 **Strengthen controls on agricultural management practices within the Shoreland Zone, consistent with the state guidelines.**

Compliance with the state guidelines by the end of 1991 is mandatory. (See Draft Zoning).

Responsible Party: Planning Board

Date of Completion: 12/91

2.2 **Continue to work with State to strengthen water quality/pollution ordinances.**

Responsible Party: Town Manager

Date of Completion: ongoing

2.3 **Create a Joint Harbor Commission (or establish a method for regular, periodic meetings) with surrounding towns (Eliot, Portsmouth, York, Newcastle, Newington, and a representative of the Portsmouth Naval Shipyard) to discuss regional approaches to issues regarding shoreland planning, management and enforcement, including land use, water pollution, traffic, and tourism.**

Because a significant portion of the shoreline is shared with neighboring communities, and use of the shoreline in one community may affect the environment in the next community, Town officials should ensure that surrounding areas of jurisdiction work cooperatively. The Maine legislature is attempting to organize such an entity. Should the legislature's effort be successful, there will be no need for the Town to organize a similar Commission.

Responsible Party: Town Planner

Date of Completion: 6/91

2.4 **Encourage provision of pumpout facilities for boats at all large municipal and commercial boating facilities (marinas).**

Provision of pumpout facilities at commercial marinas is required by the state.

Responsible Party: Port Authority/Planning Board

Date of Completion: 7/90

2.5 **Eliminate or reduce non-point sources of pollution by:**

- **Requiring the following data during subdivision and/or site plan review:**

- Erosion and Sedimentation Plans

- Stormwater Management Plans (ponds, drainage swales, french drain, etc.)
- Topographic maps
- Critical area identification
- Parking lot treatment and runoff
- Oil and gas separators, where appropriate
- Catch Basin infiltrations
- Buffer areas
- High intensity soil evaluation/Septic Design Criteria
- Construction limitations
- Groundwater Assessments
- Wildlife Corridor Enhancement/Protection

• **Encouraging the following good Agricultural Management Practices, consistent with the State guidelines:**

- Discourage or reduce the use of pesticides and fertilizers (advise on what types of crops require fewer nutrients).
- Time activities not to coincide with peak seasonal runoff
- Work with contours to minimize or allow for maximum dissolution before entering streams.

• **Enacting the following ordinance provisions to limit non-point sources of pollution:**

- Require that all fill and bare soils be seeded and stabilized promptly.
- Establish pre-treatment standards for activities that use chemicals in production.
- Regulate the number of roads, driveways, and camp roads constructed near (within 250 ft. of) water bodies. Require shared access points, limited pavement widths, and appropriate drainage characteristics.
- Incorporate adequate ditching, storm water retention and culvert sizing provisions in site review ordinances.

Responsible Party: Planning Board/Conservation Commission

Date of Completion: 12/91

2.6 **Establish a shellfish conservation ordinance.**

Creation and enforcement of an effective shellfish ordinance will help to maintain a healthy shellfish population. (A copy of the Scarborough ordinance is included in the Appendix H.)

Responsible Party: Clam Warden

Date of Completion: 6/91

2.7 **Reduce litter pollution through provision of abundant waste receptacles at beaches, marinas and wharfs.**

State law mandates provision of waste facilities at marinas and public wharfs. (Waste receptacles at Seapoint Beach should have small openings to discourage dumping of household trash). Waste reception facilities should be upgraded to handle increased plastic and general waste.

Responsible Party: Port Authority/Public Works

Date of Completion: 12/90

2.8 **Develop a program to encourage education on and compliance with state water quality laws by:**

- Encouraging dye tests of local septic systems within the Shoreland Zone.
- Assisting in state enforcement by reporting violators.
- Establishing an educational program for homeowners.

Responsible Party: Conservation Commission

Date of Completion: 12/91

2.9 **Enforce prohibition of overboard discharge of sewage from landside facilities, and provide the necessary resources to enable implementation.**

Responsible Party: Code Enforcement Officer/Town Council

Date of Completion: 12/90

2.10 **Revise current snow removal practices to include:**

- Prohibition of dumping of snow from Kittery's Town dock.
- Prohibition of dumping of snow within 250 feet of water bodies or within any Resource Protection Zone, consistent with State guidelines.
- Designation of snow storage areas during site review process, with minimum 20 foot buffer to property lines.

Proper snow removal practices will help to reduce pollution of water resources with road salt and petroleum product residues.

Responsible Party: Public Works/Planning Board

Date of Completion: 12/90

2.11 **Expand the duties of the Harbor Master to include marine resource duties.**

The responsibilities would include Code Enforcement duties related to waterfront activities in addition to Harbor Master duties. Inclusion of these duties will provide help in enforcing state laws regarding responsible use of the waterfront. This expansion of duties is consistent with state policy; the state is providing for education of Harbor Masters regarding marine resource duties.

Responsible Party: Port Authority/Harbor Master

Date of Completion: 6/90

2.12 **Examine the possibility of a cooperative arrangement in which University of New Hampshire and Cornell University personnel on Appledore Island would report any violations of waterfront-related ordinances and/or guidelines to the Harbor Master.**

This arrangement would help the Harbor Master in carrying out his/her duties and would encourage cooperation between waterfront users.

Responsible Party: Port Authority/Harbor Master

Date of Completion: 12/90

GOAL 3: TO PRESERVE AND INCREASE PUBLIC ACCESS TO THE WATERFRONT FOR NON-BOATING RECREATIONAL USES

3.1 **Eliminate fees for residents at Fort Foster to encourage use of Fort Foster and eliminate financial incentive for use of Seapoint Beach over Fort Foster, using dump-stickers or passes for proof of residency. Increase fees for non-residents.**

Resident fees in 1989 accounted for approximately $12,000, or 27% of the total operating budget for the facility.

Responsible Party: Town Council

Date of Completion: 12/90

3.2 **Encourage improvements at appropriate existing undeveloped Town-owned waterfront parcels to encourage/allow public use of waterfront (see list below).** Partial funding for these improvements could come from user fees and grants (see 9.2).

A. Improvements which would require minimal investment and could be accomplished in the very near term:

Parcel 15.91 on Rogers Road behind the Frisbee School has nice waterfront views along Spruce Creek. Minor improvements for passive use, as described in Conservation Commission plans) should be made to

this large (39 acres including school) parcel. The school access road and parking lot could be used as the peak use periods would not overlap.

B. Improvements which will require significant investment and/or additional time for planning, design, and construction:

Parcel 24.35 at Eagle Point should be improved for use as a waterfront recreation area with picnic and passive recreation areas (and possible small craft boating facility). This 20 acre site has beautiful views of Spruce Creek, adequate access, and room for development of parking and recreational areas. The site can also conveniently be used in conjunction with the adjacent community center. During the interim, vehicles should be prohibited from the site.

Parcel 1.57 on Rice Avenue should be developed for public boat access This would include a pier structure, sufficient parking, and lighting. Mud flats at low tide extend 20 to 30 feet from the shore and water depths vary from 17 feet to 0.5 feet between the Rice Avenue site and Badger's Island. Access to and from the site to open water would be made via the main channel of the river (south of Badger's Island) passing beneath Memorial Bridge (clearance 19 feet at MLW). The site would provide reasonably-protected moorings but would likely require some dredging. Tanker traffic is considerable in this area and even with the expansion of the turning basin some conflict should be expected. The pier structure length would probably have to be in the range of 100-150 feet from which platforms, ramps and floats could be extended. A detailed engineering study would be required to adequately assess both environmental impacts and order of magnitude costs. The neighborhood adjacent to the Rice Avenue property is primarily residential with relatively low traffic volumes; there will be some impact from increased traffic volumes.

Wood Island: The island should be improved to encourage occasional use by boaters. A study should be undertaken to develop a master plan for the island, including re-use options for the buildings, increased public access, and maintenance requirements.

C. Improvements which require acquisition of additional property, and/or negotiations with other agencies, and will therefore take additional planning and implementation time:

Parcels 2.43A on Gray Lodge and 64A on Spinney Lane: Because of the lack of parking in the area, and the difficult access (through narrow residential streets), development of these parcels should be contingent on negotiating an agreement with the state for an easement on the land under I-95 which connects the two parcels. Developing all of this land as one facility (with the potential acquisition of adjacent parcel 2.65 if it becomes available) would allow for the creation of parking and a picnic/passive recreation area.

The remaining Town-owned parcels are of such limited size, with little or no access or parking, that development for any use is not possible.

Responsible Party: Conservation Commission/Port Authority

Date of Completion: 12/95 (on-going)

3.3 **Encourage acquisition of prime waterfront parcels by the Town, as they become available.**

Parcel 4.56-2 (behind Portland Glass) would provide much-needed public access to the waterfront in the Downtown area and Parcel 2.65 (see above) would facilitate the recreational development of the land adjacent to I-95 (see Recommendation 3.2 above). Acquisition of the Isles of Shoals would ensure their continued protection. Other waterfront parcels should be evaluated as they become available. For possible funding sources see Recommendation 9.2.

Responsible Party: Town Manager

Date of Completion: on-going

3.4 **Maintain contact with the State Department of Recreation to ensure continued operation and maintenance of Fort McClary as a State Park.**

Responsible Party: Town Manager

Date of Completion: on-going

3.5 **Continue to maintain Fort Foster and Seapoint Beach as primarily non-boating recreation areas and educate the pubic regarding appropriate use of this resource.**

Continued use for small non-motorized, non-trailored craft such as canoes and rowboats which can be manually carried to the water's edge should be allowed in designated areas. Continue to allow windsurfing in the designated area at Fort Foster and designate a windsurfing area at Seapoint Beach. This will minimize conflicts between boaters and other waterfront users.

A display case with an appropriately labeled plan of the areas and interpretive information would help to educate the public on both the value and appropriate use of the resources.

Responsible Party: Conservation Commission

Date of Completion: on-going

3.6 **Designate a swimming area at Seapoint Beach and Fort Foster to minimize conflicts between swimmers and boaters.**

A U.S. Coast Guard permit will be required for the designated swimming area.

Responsible Party: Harbor Master/Town Manager

Date of Completion: 6/91

3.7 **Increase public access to the waterfront through encouraging the inclusion of public access provisions as part of site plan approval for projects in appropriate locations.** (see Zoning Recommendations)

Responsible Party: Planning Board

Date of Completion: 12/91

3.8 **Expand the responsibilities of the Kittery Conservation Commission to include responsibility for participating in policy decisions regarding acquisition, development and maintenance of waterfront recreation property.**

Responsible Party: Town Council

Date of Completion: 12/90

3.9 **Encourage the Kittery Land Trust and other conservation groups to acquire and manage open space in the Town.**

These groups could use public and private funding to acquire key parcels of open space in the community. In addition, these groups could accept donations of land easements and work with landowners on planning for the future of their holdings. A priority of these groups should be obtaining parcels or easements which provide for access to the shore.

Responsible Party: Conservation Commission

Date of Completion: ongoing

3.10 **Develop an ordinance to prohibit the use of jet skis throughout the Town of Kittery.**

Responsible Party: Town Manager

Date of Completion: 6/91

GOAL 4: TO INCREASE AND IMPROVE FACILITIES FOR RECREATIONAL BOATING

4.1 **Adopt and maintain the new mooring plan which maximizes available mooring areas.**

A new mooring plan was developed as part of this Comprehensive Harbor Planning process (see Mooring Plan in Appendix)

Responsible Party: Port Authority

Date of Completion: 12/90

4.2 **Develop and distribute a large scale map showing the locations of mooring areas, boat launch areas, passive recreational areas and marinas/public wharf areas.**

This map would encourage use of all facilities and help to educate the public on waterfront access opportunities.

Responsible Party: Port Authority

Date of Completion: 6/91

4.3 **Continue to allow use of small non-motorized boats at Eagle Point** (see 3.2).

Responsible Party: No action required.

Date of Completion: on-going.

4.4 **Display and enforce rules and ordinances regarding boating safety.**

Copies of Rules and Regulations should be handed out with boating licenses. As the scope of responsibilities is expanded, the Harbor Master staff should be increased as required to allow for enforcement of these rules and regulations.

Responsible Party: Town Manager

Date of Completion: 12/90

4.5 **Aggressively pursue state and local funding opportunities** (see 9.2).

Use of state funding programs would allow the Town to make waterfront improvements not currently affordable.

Responsible Party: Town Planner/Town Manager

Date of Completion: ongoing

4.6 **Revise current mooring fees upward to more closely reflect regional fees, contingent upon fees being earmarked for waterfront activities (see 4.8).**

Raising mooring fees would provide additional funding for waterfront improvements. (Persons with riparian rights will be entitled to one free mooring space.)

Responsible Party: Port Authority

Date of Completion: 12/90

4.7 **Establish harbor maintenance and management as a line item in the Town budget.**

Mooring fees, boat taxes, fines, etc. should be used to improve and maintain harbor-related infrastructure.

Responsible Party: Town Manager/Town Council

Date of Completion: 12/90

4.8 **Improve Kittery Point Wharf (Pepperrell Cove) for recreational boating.**

Recommended improvements include:

- Provision of recreational boating supplies close to area.
- Work with adjacent yacht club to expand water taxi service to Kittery Point Wharf
- Provision of pump-out station
- Increase in frequency of trash barrel emptying
- Provision of public restrooms

Use of parking at the Mitchell School should be encouraged. Vehicular access to this parking lot should be via Route 103 (Pepperrell Road) to Haley Road. Pedestrian access from the parking lot to the Wharf can be via School Lane to Route 103 (approximately .25 miles). There is an existing sidewalk on the north side of Route 103 in this location.

Responsible Party: Port Authority

Date of Completion: 6/93

4.9 **Maintain current use of Town Wharf.**

Building and property limitations presently restrict expansion of use for the Downtown Wharf.

Responsible Party: Port Authority

Date of Completion: ongoing

4.10 **Improve boat launch at Traip Academy to include adequate lighting, access, and formal parking and turnaround areas.**

Improvements at the boat ramp should be coordinated with on-going improvements at the school, if possible.

Responsible Party: Port Authority

Date of Completion: 12/90

4.11 **Set aside monies for replacement of floats at Pepperrell Cove.**

The existing docks and floats at Pepperrell Cove are beginning to come of age and require both significant maintenance and in some instances replacement. The Town should begin to set aside monies for replacement of floats. (The Town has included these repairs on the State's list of Port and Harbor Planning Improvements; they will undergo additional scrutiny by State officials in the Port and Harbor Needs Assessment Study.)

Responsible Party: Town Council

Date of Completion: ongoing

4.12 **Develop and implement new mooring allocation policy which does not give priority to Kittery residents.**

New State and Federal policies will mandate that mooring allocations shall not discriminate against non-residents. Policies to be examined include those which favor specific user groups (i.e., fishermen over pleasure boaters) or a first come-first served system.

Responsible Party: Port Authority/Harbor Master

Date of Completion: ongoing

GOAL 5: TO ENSURE SAFETY OF BOATERS AND OTHER WATERFRONT USERS AND COMPATIBILITY OF BOATING WITH OTHER RECREATIONAL ACTIVITIES

5.1 **Display and enforce rules and ordinances** (see 4.4).

Responsible Party: Port Authority

Date of Completion: 12/90

5.2 **Develop and enforce ordinances prohibiting anchorage of boats within designated swimming areas at Seapoint Beach and Fort Foster** (see 3.6).

Anchorage of boats near public beaches is dangerous to swimmers.

Responsible Party: Port Authority

Date of Completion: 12/90

5.3 **Enforce existing speed limits for boats in creeks.**

Responsible Party: Harbor Master

Date of Completion: on-going

GOAL 6: TO ENCOURAGE AND PROMOTE COMMERCIAL FISHING ACTIVITY

6.1 **Develop zoning to encourage water-dependent uses** (see Zoning Recommendations).

Responsible Party: Planning Board

Date of Completion: 12/91

6.2 **Develop plan and schedule for improvements to Kittery Point Wharf (Pepperrell Cove) for commercial fishing.**

Improvements shall include:

- A hoist
- An area for regular maintenance. Generally 10 feet by 25 feet is a sufficiently large area for maintenance.
- A storage area (storage lockers)
- An expanded dinghy storage space area
- Restrooms
- Pump-out facility
- Parking areas. (This might include provision not only for vehicles but also for trailers.) The number of reserved parking spaces should be based on crew size and type of fishing.
- Study for a permanent dock arrangement to facilitate winter commercial fishing should be considered. Presently the existing docks are removed in the winter which necessitates use of a ladder during the winter months.

Note: Items such as marine rails, marine retail supplies, etc. were not considered to be reasonably implementable at this location.

Responsible Party: Port Authority

Date of Completion: 6/91

GOAL 7: TO ENCOURAGE THE CONTINUATION OF KITTERY HARBOR AS AN ACTIVE WORKING WATERFRONT IN THE DOWNTOWN AREA

7.1 **Create zoning ordinance which encourages water dependent use of land in commercial areas** (see Zoning Recommendations).

Responsible Party: Planning Board.

Date of Completion: 12/91

7.2 **Designate the Portsmouth Naval Shipyard as an Industrial/ Maritime Activities District in the event that the Shipyard is abandoned by the Navy.**

This designation is consistent with existing uses and facilities.

Responsible Party: Planning Board.

Date of Completion: 12/91

7.3 **Preserve the possibility of developing water-oriented transportation by ensuring that new development does not reduce the available berthing space**

for commercial vessels (including ferries and charters) (see Zoning Recommendations).

Responsible Party: Planning Board.

Date of Completion: 12/91

GOAL 8: TO ENSURE THAT DEVELOPMENT OF WATERFRONT LAND IS CONSISTENT WITH THE GOALS OF PRESERVING NATURAL/CRITICAL AREAS, IMPROVING PUBLIC ACCESS TO THE WATERFRONT, PRESERVING VIEWS TO THE WATERFRONT AND PRESERVING/ INCREASING WATER DEPENDENT/ ENHANCED USES.

8.1 **Develop zoning language which encourages protection of important views to the waterfront as identified by Conservation Commission** (see Zoning Recommendations).

Responsible Party: Planning Board.

Date of Completion: 12/91

8.2 **Develop zoning ordinance which provides for development of public access as part of private developments in appropriate locations** (see Zoning Recommendations).

Responsible Party: Planning Board.

Date of Completion: 12/91

8.3 **Develop design guidelines for docks, slips and marinas which ensure that additional mooring space is consistent with waterfront goals including maintenance of scenic character.**

Responsible Party: Port Authority.

Date of Completion: 12/91

8.4 **Develop zoning ordinance which strengthens environmental controls for new and existing development** (see Zoning Recommendations).

Responsible Party: Planning Board.

Date of Completion: 12/91

8.5 **In the event that Kittery amends the Town's Zoning Ordinance to include Transfer of Development Rights, the Shoreland Overlay Zone should be included in the "sending area" to encourage the maintenance of appropriate waterfront property as open space.**

Responsible Party: Planning Board.

Date of Completion: timing unknown

GOAL 9: TO INCREASE FUNDING CAPACITY FOR WATERFRONT PROJECTS

9.1 **Raise mooring and license fees to create a capital fund for waterfront acquisition and improvements** (see 4.7).

Responsible Party: Port Authority

Date of Completion: 12/90

9.2 **Explore state and federal grant programs for funding of waterfront acquisitions and improvements.**

Land side facilities such as community piers, parking lots and boat launching and storage areas for fishermen can be improved with local, State, or Federal funds:

Land and Water Conservation (LAW-CON) funds are available from the Department of Economic and Community Development to support the acquisition and/or development of outdoor recreation facilities, including waterfront parks.

Boating Facilities Program grants are available from the Bureau of Parks and Recreation for the acquisition, development, and improvement of state, regional, or local boat access sites.

Community Development Block Grant or local funds should be considered for upgrading streets, lights, parking areas and sidewalks.

Coastal Planning Grants are available from the Department of Economic and Community Development for municipal waterfront and harbor planning activities. These activities should result in implementation strategies to further Maine's Coastal Policies.

Waterfront Action Grants are available from the office of Comprehensive Planning, Department of Economic and Community Development for the acquisition and development of shorefront land to improve public access; low cost construction projects on waterfront land; and the rehabilitation of municipality owned piers.

Wallop-Breaux Program- is a federal program administered by the Department of Inland Fisheries & Wildlife and funded by a motor-boat tax. Ten percent of the monies - approximately $120,000 - $140,000 per year - is dedicated to public boat access projects. These projects must be public but a fee can be charged to cover costs of operation. These monies are allocated on a 75% federal matching basis.

Boating Facilities Program - Provides public facilities for boats in the water of the State, including but not limited to launching ramps, parking sites and access roads. The State Bureau of Parks and Recreation is authorized to provide Grants-in-Aid to municipalities and private organizations to assist in the acquisition, development of improvement of public boat facilities as well as to acquire and develop State owned sites.

Responsible Party: Town Planner/Town Manager

Date of Completion: ongoing

SECTION V:

SHORELAND ZONING ORDINANCE RECOMMENDATIONS

Shoreland Zoning Ordinance Recommendations

As defined by the State, the Shoreland Zone includes all land areas within 250 feet, horizontal distance, of the normal high-water line of any river or saltwater body; within 250 feet, horizontal distance, of the upland edge of a coastal or freshwater wetland; and within 75 feet, horizontal distance, of the normal high-water line of a stream. The Shoreland Zoning Ordinance applies to any structure built on, over or abutting a dock, wharf or pier, or other structure extending beyond the normal high-water line of a water body or within a wetland.

Towns are required to adopt a Shoreland Zoning Ordinance which is at least as restrictive as the one detailed in the State of Maine Guidelines for Municipal Shoreland Zoning Ordinances 1990. In the event that a Town adopts an ordinance which is determined by the State to be insufficient, the State can impose a new ordinance, consistent with the State Guidelines. Shoreland Zoning Ordinances must be consistent with the State requirements by 31 December 1991.

It is recommended that the Kittery Shoreland Zoning Ordinance follow, and be consistent with, the State Guidelines, with the exceptions noted below. Throughout the ordinance, all references to Great Ponds should be deleted as there are no Great Ponds in Kittery. The minimum shoreline setback for any structure or restricted activity should be one hundred (100) feet unless otherwise noted. In cases where the Kittery Zoning Ordinance is not consistent with the State guidelines, the more restrictive regulations will prevail.

The following refers to specific sections of the State Guidelines which should be revised for consistency with land use and shoreline conditions in the Town of Kittery. The recommended changes are shown in italics.

Section 9. Districts and Zoning Map

The Shoreland Zone will overlay Kittery's basic zoning districts, with the exception of the Resource Protection Zone which is delineated on Figure 6.

Section 13. Establishment of Districts

The Shoreland Zone will overlay Kittery's basic zoning districts, with the exception of the Resource Protection Zone which is delineated on Figure 6.

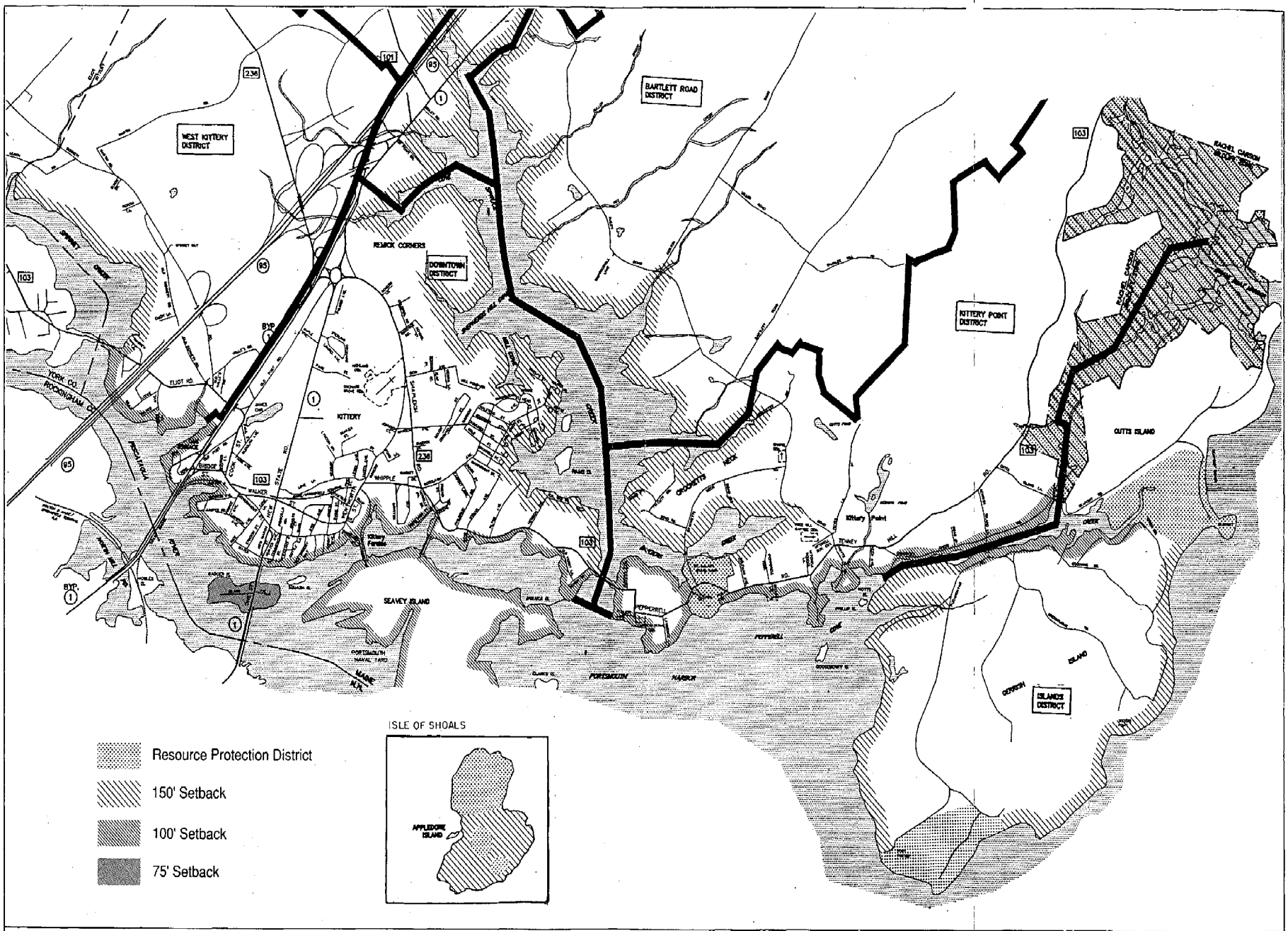
Section 14. Table of Land Uses

The Table of Land Uses has been adjusted to conform to Kittery's Zoning Districts and existing patterns of development. Table 9 is a Table of Land Uses.

Section 15. Land Use Standards

A. Minimum Lot Standards

1. *In those instances where the Town's existing minimum lot standards are greater than those recommended by the State (e.g., 80,000 SF minimum lot size in Rural Conservation Districts), the Town's more restrictive standards should be used. In no instance, shall the required minimum shore frontage be less than 200 feet.*



TOWN OF KITTERY
Kittery Harbor Plan

Wallace, Floyd, Associates Inc.
Architects/Planners

T.Y. Lin International
Engineers/Planners

Not to Scale

JUNE
1990

Figure 6
PROPOSED ZONING SETBACKS

TABLE 9. LAND USES IN THE SHORELAND ZONE

LAND USES	DISTRICT							
	C	RC	RP	BI	RR	SR	UR	DT/LB
1. Non-intensive recreational uses not requiring structures such as hunting, fishing and hiking	yes	yes	yes	yes	yes	yes	yes	yes
2. Motorized vehicular traffic on existing roads and trails	yes	yes	yes	yes	yes	yes	yes	yes
3. Forest management activities except for timber harvesting	yes	yes	yes	yes	yes	yes	yes	yes
4. Timber harvesting	yes	yes	CEO	yes	yes	yes	yes	yes
5. Clearing of vegetation for approved construction and other allowed uses	yes	yes	CEO	yes	yes	yes	yes	yes
6. Fire prevention activities	yes	yes	yes	yes	yes	yes	yes	yes
7. Wildlife management practices	yes	yes	yes	yes	yes	yes	yes	yes
8. Soil and water conservation practices	yes	yes	yes	yes	yes	yes	yes	yes
9. Mineral exploration	yes[1]	yes[1]	yes[1]	yes[1]	yes[1]	yes[1]	yes[1]	yes[1]
10. Mineral extraction including sand and gravel extraction	no	no	no	no	no	no	no	no
11. Surveying and resource analysis	yes	yes	yes	yes	yes	yes	yes	yes
12. Emergency operations	yes	yes	yes	yes	yes	yes	yes	yes
13. Agriculture	PB	yes	PB	PB	yes	yes	yes	PB
14. Aquaculture	PB	PB	PB	PB	yes	yes	yes	PB
15. Principal structures and uses								
A. One and two family residential[2]	no	ZBA	no	ZBA	ZBA	ZBA	ZBA	ZBA
B. Multi-family residential	no	no	no	PB	no	no	no	PB
C. Commercial	PB[3]	no	no	PB	no	no	no	PB
D. Industrial	no	no	no	no	no	no	no	no
E. Governmental and institutional	no	no	no	no	no	no	no	no
F. Small non-residential facilities for educational, scientific or nature interpretation purposes[4]	PB	PB	PB	PB	PB	PB	PB	PB
G. Residential facilities for educational, scientific or nature interpretation purposes	no	PB	no	no	no	no	no	no
16. Structures accessory to allowed uses	PB	PB	PB	PB	PB	PB	PB	PB
17. Structures built on, over, or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line or upland edge of a wetland[4]	PB	PB	PB	PB	PB	PB	PB	PB
18. Conversion of seasonal residential structures to year-round residences	CEO	CEO	no	CEO	CEO	CEO	CEO	CEO
19. Home occupations	yes	ZBA	no	yes	yes	yes	yes	yes
20. Private sewage disposal units for allowed uses	CEO	CEO	CEO	CEO	CEO	CEO	CEO	CEO
21. Essential services	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA
22. Service drops, as defined, to allowed uses	yes	yes	yes	yes	yes	yes	yes	yes
23. Public and private recreational areas involving minimal structural development	PB	PB	PB	PB	PB	PB	PB	PB
24. Individual, private campsites	no	ZBA	no	CEO	CEO	CEO	CEO	no
25. Campgrounds	no	no	no	no	no	no	no	no
26. Road construction and parking facilities	PB	PB	no[5]	PB	PB	PB	PB	PB
27. Marinas[6]	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA	ZBA
28. Filling and earthmoving of <10 cubic yards	yes	yes	CEO	yes	yes	yes	yes	yes
29. Filling and earthmoving of >10 cubic yards	PB	PB	PB	PB	PB	PB	PB	PB
30. Signs	CEO	CEO	CEO	CEO	CEO	CEO	CEO	CEO
31. Uses similar to allowed uses	CEO	CEO	CEO	CEO	CEO	CEO	CEO	CEO
32. Uses similar to allowed uses requiring a CEO permit	CEO	CEO	CEO	CEO	CEO	CEO	CEO	CEO
33. Uses similar to uses requiring a PB permit	PB	PB	PB	PB	PB	PB	PB	PB

[1]Requires permit from Planning Board if more than 100 square feet of surface area is required.

[2]Cluster development must comply with minimum standards for Shoreland Zone.

[3]See attached list of allowable water-dependent uses.

[4]Functionally water-dependent uses only.

[5]Except where no reasonable alternative route or location is available outside the RP area in which case a permit is required from PB.

[6]See regulations regarding marinas.

B. Principal and Accessory Structures

1. All new principal and accessory structure shall be set back at least *one hundred (100)* feet from the normal high-water line of from the normal high water line of any water bodies, tributary streams, or the upland edge of a wetland, *except as indicated on Figure 6.*

   b. *Restrictions on Significant River Segments are not relevant to Kittery.*

4. *The maximum allowable lot coverage shall be consistent with Kittery's districts and with the Town's more restrictive requirements.*

C. Piers, Docks, Wharfs, Bridges and Other Structure and Uses Extending Over or Beyond the Normal High-Water Line of a Water Body or Within a Wetland.

8. *Restrictions limiting the allowable number of slips per foot of shore frontage or per square foot of parcel area should be added.*

D. Campgrounds

The discussion of campground restrictions should be deleted; no campgrounds will be allowed within the Shoreland Zone.

E. Individual Private Campsites

2. Campsite placement on any lot shall be a minimum of *one hundred (100) feet (except as indicated on Figure 6)* from the normal high-water line of water bodies, tributary streams, or the upland edge of a wetland.

F. Commercial and Industrial Uses

The discussion of uses adjacent to great ponds and rivers and streams flowing to great ponds should be deleted; there are no Great Ponds or associated rivers and streams in Kittery.

G. Parking Areas

3. *The size of proposed parking facilities should be consistent with requirements for other areas of Kittery, as detailed in the Kittery Zoning Ordinance.*

H. Roads and Driveways

1. Roads and driveways shall be set back at least *one hundred (100) feet (except as indicated on Figure 6)* from the normal high-water line of water bodies, tributary streams, or the upland edge of a wetland.

I. Signs

In those instances where the Town's existing signage standards are more restrictive than those recommended by the State, the Town's more restrictive standards should be used.

M. Mineral Exploration and Extraction

3. *The discussion of gravel pits adjacent to Significant River Segments should be deleted; development of gravel pits is prohibited within the entire Shoreland Zone in Kittery.*

N. Agriculture

2. Manure shall be stored or stockpiled a minimum of *one hundred (100) feet (except as indicated on Figure 6)*, horizontal distance, of any water body, tributary stream or wetland.

4. There shall be no new tilling of soil within *one hundred (100) feet (except as indicated on Figure 6)*, horizontal distance, of any water body, tributary stream or wetland.

5. After the effective date of this Ordinance, newly established livestock grazing areas shall not be permitted within *one hundred (100) feet (except as indicated on Figure 6)*, horizontal distance, of any water body, tributary stream or wetland.

O. Timber Harvesting

1. *The discussion of timber harvesting adjacent to a Great Pond should be deleted; there are no Great Ponds in Kittery.*

2.a.i. Within *one hundred (100) feet (except as indicated on Figure 6)*, horizontal distance, of the normal high-water line of water bodies, tributary streams, or the upland edge of a wetland, there shall be no clearcut openings and a well-distributed stand of trees and other vegetation, including existing ground cover, shall be maintained.

2.a.ii. At distances greater than *one hundred (100) feet (or the specific setback as indicated on Figure 6)*, horizontal distance, of the normal high-water line of water bodies, tributary streams, or the upland edge of a wetland, harvesting operations shall not create single clearcut openings greater than ten thousand (10,000) square feet in the forest canopy.

2.f. Except for water crossings, skid trails and other sites where the operation of machinery used in timber harvesting results in the exposure of mineral soil shall be located such that an unscarified strip of vegetation of at least *one hundred (100) feet (or the specific setback as indicated on Figure 6)* in width for slopes up to ten (10) percent shall be retained between the exposed mineral soil and the normal high-water line of a water body or upland edge of a wetland.

P. Clearing of Vegetation for Development

1. *The discussion of clearing of vegetation adjacent to a Great Pond should be deleted; there are no Great Ponds in Kittery.*

2. Except in areas as described in Paragraph 1, above, and except to allow for the development of permitted uses, within a strip of land extending *one hundred (100) feet (or as indicated on Figure 6)*, horizontal distance, inland from the normal high-water line of any water body, tributary stream, or

the upland edge of a wetland, a buffer strip of vegetation shall be preserved as follows:.....

a-c. *The discussion of clearing of vegetation adjacent to a Great Pond should be deleted; there are no Great Ponds in Kittery.*

3. At distances greater than *one hundred (100) feet (or as indicated on Figure 6)*, horizontal distance, from the normal high-water line of any other water body, tributary stream, or the upland edge of a wetland, except to allow for the development of permitted uses, there shall be permitted on any lot, in any ten (10) year period, selective cutting of not more than forty (40) percent of the volume of trees four (4) inches or more in diameter, measured 4 1/2 feet above ground level.

Section 16. Administration

Administration of the Shoreland Zoning Ordinance shall be consistent with administration of the other elements of the Kittery Zoning Ordinance.

Section 17. Definitions

Definitions should be checked for consistency with the Kittery Zoning Ordinance.

The following items are recommended as additions to the Shoreland Zoning Ordinance. They are not included in the State Guidelines.

View Corridors

View corridors as identified by the Conservation Commission shall be maintained, consistent with recommendations made by the Conservation Commission.

Public Access

Developers of any new construction or substantial improvement of an existing building shall be encouraged to provide for public access to and along the waterfront in accordance with plans approved by the Planning Board during Site Plan Review. This provision is intended to allow flexibility for the owner and the Town in arriving at an acceptable design. Possible arrangements for access may include walkways, boat launching or docking facilities open to the public, plazas or other means. Access provisions between adjacent properties should be coordinated. The Planning Board may waive this provision if it finds that public access would be incompatible with the use of the property or if public safety problems would be created.

Design of docks, piers and wharfs shall be consistent with design guidelines developed by the Port Authority.

Marinas shall be allowed per Table 11 provided that such use does not decrease the amount of, nor diminish the quality of, existing on-site berthing space, as measured along the pier, float or wharf edge, which could be used for commercial vessels in its current condition or with necessary maintenance or rehabilitation. Commercial

vessels shall include vessels used for commercial fishing, water transportation, and charter purposes.

Allowable water-dependent uses

In areas where commercial development is restricted to water-dependent uses, such uses shall include:

- Boat charters, excursions and rentals.
- Piers, docks, wharfs
- Commercial and recreational fishing and boating facilities
- Commercial fishing/shellfishing services and sales
- Marinas and related services
- Chandleries
- Sail lofts
- Boat building and repair
- Boat storage and refueling
- Retail boat and motor sales
- Boat brokerage
- Fish storage/retail/wholesale
- Dock and port facilities

SECTION VI:

CAPITAL IMPROVEMENTS PLAN

CAPITAL IMPROVEMENTS PLAN

As part of the Harbor Plan development, a Capital Improvements Plan (CIP) was developed. A CIP is generally a prioritized ranking of any project requiring fiscal expenditure greater than $5,000.00 and/or having a useful life of three years or more. Projects may typically include property acquisition, infrastructure improvements, and/or planning and engineering studies. Potential CIP projects were identified during the inventory and analysis and policy development stages of the study and clearly stated in the final recommendations. The projects which emerged during Kittery's Harbor Study include the following:

- Improvements to Traip Academy ($30,000.)

  This provides funding for parking and lighting improvements as well as improvements to the existing boat ramp.

- Winter Dock Improvements Study ($15,000.)

  This item provides the funding for a study to determine the facilities which are required for improved accessibility to the Town docks in the winter.

- Replace/Maintain Town Docks ($40,000.)

  Many of the existing Town dock and wharf facilities are in need of repair and/or replacement. This item provides for funding of some of the more pressing repairs.

- Informational Signs ($5,000.)

  This item provides funding for the installation of signs at recreational facilities illustrating rules and regulations, and environmentally related concerns.

- Educational Programs ($5,000.)

  This item provides seed funding to increase environmental awareness through brochures, pamphlets, and community outreach programs.

- Schematic Design - Eagle Point ($14,000.)

  This item would fund the schematic design of improvements for recreational use at Eagle Point.

- Rice Avenue Preliminary Engineering ($50,000.)

  This provides funding for a preliminary engineering design for landside, docking, and mooring facilities at the Rice Avenue Parcel.

- Re-Use Study for Wood Island ($10,000.)

This item would fund a study to develop a master plan for the island, including re-use options for the buildings, increased public access, and maintenance requirements.

- Master Plan for Parcels 2.43A and 64A ($4,000.)

  This item would fund a study to develop plans for the recreational use of Parcels 2.43A and 64A, along with the state-owned land under I-95.

- Parcel 4-56.2 (Boulter's Pier) Acquisition ($236,000.)

  Acquisition of Parcel 4.56-2 (behind Portland Glass) would provide much-needed public access to the waterfront in the Downtown area

- Parcel 2.65 (under I-95) Acquisition ($161,700.)

  Acquisition of Parcel 2.65 would facilitate the recreational development of the land adjacent to I-95

- Acquisition of the Isles of Shoals would ensure their continued protection.

  Appledore Island Acquisition ($813,900.)
  Cedar Island Acquisition ($184,200.)
  Duck Island Acquisition ($30,400.)

Each of the above projects was then ranked by Committee members according to the following criteria: estimated fiscal requirements, effects on health and safety, environmental impact, size of the population potentially served, feasibility, relationship to other projects, and responsiveness to an urgent need. The final rankings and recommended fiscal budget year are shown below (1-Highest Priority, 11-Lowest Priority):

Table 10: CIP Project Priorities

Priority	Project	Est. Cost	Fiscal Year
1.	Traip Academy Ramp Improvements	$30,000.	91-92
2.	Winter Dock Improvements	$15,000.	91-92
3.	Replace/Maintain Docks	$40,000	92-93
4.	Informational Signs	$5,000.	92-93
5.	Educational Programs	$5,000.	92-93
6.	Schematic Design-Eagle Point	$14,000.	94-95
7.	Rice Avenue Preliminary Engineering	$45,000.	94-95

8.	Reuse Study - Wood Island	$10,000.	95-96
9.	Master Plan - 2.43A/64A	$4,000.	95-96

As can be seen from the chart, the acquisition of any properties is beyond the recommended six year CIP horizon, and is dependent upon the properties becoming available. However, the rankings of each of the acquisitions is as follows:

1. Parcel 4-56.2 (Boulter's Pier)
2. Parcel 2.65 (under I-95)
3. Duck Island
4. Appledore Island
5. Cedar Island

In terms of future funding levels, it is suggested that the recommendation to establish waterfront management as a line item be implemented. Mooring fees should then be adjusted to ensure adequate future funding for both administrative and capital improvement functions.

SECTION VII:

IMPLEMENTATION SCHEDULE

Table 11: Implementation Schedule

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
1.1	Encourage protection in the area surrounding the Bitternut Hickory and Wild Coffee.	CC		X										
1.2	Delineate the Resource Protection Zone to provide maximum protection for critical resources.	PB				X								
1.3	Update and strengthen the ordinances regarding use of land within the Resource Protection Zone to comply with new state guidelines.	PB				X								
1.4	Establish adequate resource management guidelines for Smuttynose, Malaga, Cedar, Squash and Duck Islands.	CC/HM			X									
1.5	Encourage environmentally sensitive use of Gooseberry, Fishing, Wood, Whaleback, White & Horn Islands.	CC/HM			X									
1.6	Establish resource management guidelines to preserve Seapoint Beach.	CC		X										
1.7	Revise Seapoint Beach rules to prohibit dogs on the beach between 9 AM and 5 PM from July through August.	CC/TC		X										
1.8	Establish and maintain regular contact with Star Island Corporation, notifying them of changes in zoning, environmental issues, etc.	TM		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
1.9	Establish stringent enforcement policies for waterfront ordinances.	PD/HM	X											
1.10	Manage public improvement projects to protect natural/critical areas.	TM		X										
1.11	Embark on an educational program to show builders, developers and shoreland residents how they can act to reduce phosphorous build-up.	CC			X									
1.12	Maintain Gooseberry, Fishing, Wood, Whaleback, White, Horn, Smuttynose, Malaga, Cedar, Squash and Duck Islands as Resource Protection Zones.	PB				X								
2.1	Strengthen controls on agricultural management practices within the Shoreland Zone, consistent with the state guidelines.	PB				X								
2.2	Continue to work with State to strengthen water quality/pollution ordinances.	TM		on-going										
2.3	Create a Joint Harbor Commission (or establish a method for regular, periodic meetings) with surrounding towns (Eliot, Portsmouth, York, Newcastle, Newington, and a representative of the Portsmouth Naval Shipyard)) to discuss regional approaches to issues regarding shoreland planning, management and enforcement, including land use, water pollution, traffic, and tourism.	TP			X									

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
2.4	Encourage provision of pumpout facilities for boats at all large private boating facilities (marinas).	PA/PB	X											
2.5	Eliminate or reduce non-point sources of pollution by requiring specified data during subdivision and/or site plan review; encouraging appropriate agricultural management practices; and enacting ordinance provisions.	PB/CC				X								
2.6	Establish a shellfish conservation ordinance.	CW			X									
2.7	Reduce litter pollution through provision of abundant waste receptacles at beaches, marinas and wharfs.	PA/PW		X										
2.8	Develop a program to encourage education on and compliance with state water quality laws.	CC				X								
2.9	Enforce prohibition of overboard discharge of sewage from landside facilities, and provide necessary resources to enable implementation.	CEO/TC		X										
2.10	Revise current snow removal practices and regulate dumping.	PW/PB		X										
2.11	Expand the duties of the Harbor Master to include marine resource duties.	PA/HM	X											
2.12	Examine the possibility of a cooperative arrangement in which University of New Hampshire and Cornell University personnel on Appledore Island would report any violations of waterfront-related ordinances to the Harbor Master.	PA/HM		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
3.1	Eliminate fees for residents at Fort Foster to encourage use of Fort Foster and eliminate financial incentive for use of Seapoint Beach over Fort Foster, using dump-stickers or passes for proof of residency. Increase fees for non-residents.	TC		X										
3.2	Encourage improvements at appropriate, existing, undeveloped Town-owned waterfront parcels to encourage/allow public use of waterfront.	CC/PA	on-going											X
3.3	Encourage acquisition of prime waterfront parcels by the Town, as parcels become available.	TM	on-going											
3.4	Maintain contact with State Department of Recreation to ensure continued operation and maintenance of Fort McClary as State Park.	TM	on-going											
3.5	Continue to maintain Fort Foster and Seapoint Beach as primarily non-boating recreation areas and educate public regarding appropriate use of this resource.	CC	on-going											
3.6	Designate swimming area at Seapoint Beach and Fort Foster.	HM/TM			X									
3.7	Increase public access to the waterfront through encouraging the inclusion of public access provisions as part of site plan approval.	PB				X								

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
3.8	Expand the responsibilities of the Kittery Conservation Commission to include responsibility for participating in policy decisions regarding acquisition, development and maintenance of waterfront recreation property.	TC		X										
3.9	Encourage the Kittery Land Trust and other conservation groups to acquire and manage open space in the Town.	CC	on-going											
3.10	Develop an ordinance to prohibit use of jet skis throughout the Town of Kittery.	TM			X									
4.1	Adopt and maintain new mooring plan which maximizes available mooring areas.	PA		X										
4.2	Develop and distribute a large scale map showing the locations of mooring areas, boat launch areas, passive recreational areas and marinas/public wharf areas.	PA			X									
4.3	Continue to allow use of small non-motorized boats at Eagle Point.	no action required	on-going											
4.4	Display and enforce rules and ordinances regarding boating safety.	TM		X										
4.5	Aggressively pursue state and local funding opportunities.	TP/TM	on-going											
4.6	Revise current mooring fees upward to more closely reflect regional fees.	PA		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
4.7	Establish harbor maintenance and management as a line item in the Town budget.	TM/TC		X										
4.8	Improve Kittery Point Wharf (Pepperrell Cove) for recreational boating.	PA							X					
4.9	Maintain current use of Town Wharf.	PA	on-going											
4.10	Improve boat launch at Traip Academy to include adequate lighting, access, and formal parking and turnaround areas.	PA		X										
4.11	Set aside monies for replacement of floats at Pepperrell Cove.	TC	on-going											
4.12	Develop and implement new mooring allocation policy which does not give priority to Kittery residents.	PA/HM	on-going											
5.1	Display and enforce rules and ordinances.	PA		X										
5.2	Develop and enforce ordinances prohibiting anchorage of boats within designated swimming areas at Seapoint Beach and Fort Foster.	PA		X										
5.3	Enforce existing speed limits for boats in creeks.	HM	on-going											
6.1	Develop zoning to encourage water-dependent uses.	PB				X								
6.2	Develop plan and schedule for improvements to Kittery Point Wharf (Pepperrell Cove) for commercial fishing.	PA			X									

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
7.1	Develop zoning ordinance which encourages water dependent use of land in commercial zones.	PB				X								
7.2	Designate the Portsmouth Naval Shipyard as an Industrial/Maritime Activities District in the event that the Shipyard is abandoned by the Navy.	PB				X								
7.3	Preserve the possibility of developing water-oriented transportation by ensuring that new developments do not reduce the amount of berthing space available for commercial vessels.	PB				X								
8.1	Develop zoning language which encourages protection of important views to the waterfront as defined by the Conservation Commission.	PB				X								
8.2	Develop zoning ordinance which provides for development of public access as part of private developments in appropriate locations.	PB				X								
8.3	Develop design guidelines for docks, slips and marinas which ensure that additional mooring space is consistent with waterfront goals including maintenance of scenic character.	PA				X								
8.4	Develop zoning ordinance which strengthens environmental controls for new and existing development.	PB				X								

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
8.5	In the event that Kittery amends the Town's Zoning Ordinance to include Transfer of Development Rights, the Shoreland Overlay Zone should be included in the "sending area" to encourage the maintenance of appropriate waterfront property as open space.	PB												
9.1	Raise mooring and license fees to create a capital fund for waterfront acquisition and improvements.	PA		X										
9.2	Explore state and federal grant programs for funding of waterfront acquisitions and improvements.	TP/TM	on-going											

Table 12: Implementation Schedule By Responsible Party

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
	PLANNING BOARD													
1.2	Delineate the Resource Protection Zone to provide maximum protection for critical resources.	PB				X								
1.3	Update and strengthen the ordinances regarding use of land within the Resource Protection Zone to comply with new state guidelines.	PB				X								
1.12	Maintain Gooseberry, Fishing, Wood, Whaleback, White, Horn, Smuttynose, Malaga, Cedar, Squash and Duck Islands as Resource Protection Zones.	PB				X								
2.1	Strengthen controls on agricultural management practices within the Shoreland Zone, consistent with the state guidelines.	PB				X								
2.4	Encourage provision of pumpout facilities for boats at all large private boating facilities (marinas).	PA/PB	X											
2.5	Eliminate or reduce non-point sources of pollution by requiring specified data during subdivision and/or site plan review; encouraging appropriate agricultural management practices; and enacting ordinance provisions.	PB/CC				X								

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
2.10	Revise current snow removal practices and regulate dumping.	PW/PB		X										
3.7	Increase public access to the waterfront through encouraging the inclusion of public access provisions as part of site plan approval.	PB				X								
6.1	Develop zoning to encourage water-dependent uses.	PB				X								
7.1	Develop zoning ordinance which encourages water dependent use of land in commercial zones.	PB				X								
7.2	Designate the Portsmouth Naval Shipyard as an Industrial/Maritime Activities District in the event that the Shipyard is abandoned by the Navy.	PB				X								
7.3	Preserve the possibility of developing water-oriented transportation by ensuring that new development does not reduce the amount of berthing space available for commercial vessels.	PB				X								
8.1	Develop zoning language which encourages protection of important views to the waterfront as defined by Conservation Commission.	PB				X								
8.2	Develop zoning ordinance which provides for development of public access as part of private developments in appropriate locations.	PB				X								

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
8.4	Develop zoning ordinance which strengthens environmental controls for new and existing development.	PB				X								
8.5	In the event that Kittery amends the Town's Zoning Ordinance to include Transfer of Development Rights, the Shoreland Overlay Zone should be included in the "sending area" to encourage the maintenance of appropriate waterfront property as open space.	PB												
	TOWN PLANNER													
2.3	Create a Joint Harbor Commission (or establish a method for regular, periodic meetings) with surrounding towns (Eliot, Portsmouth, York, Newcastle, Newington, and a representative of the Portsmouth Naval Shipyard) to discuss regional approaches to issues regarding shoreland planning, management and enforcement, including land use, water pollution, traffic, and tourism.	TP			X									
4.5	Aggressively pursue state and local funding opportunities.	TP/TM	on-going											
9.2	Explore state and federal grant programs for funding of waterfront acquisitions and improvements.	TP/TM	on-going											
	CONSERVATION COMMISSION													
1.1	Encourage protection in the area surrounding the Bitternut Hickory and Wild Coffee.	CC		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
1.4	Establish adequate resource management practices for Smuttynose, Malaga, Cedar, Squash and Duck Islands.	CC/HM			X									
1.5	Encourage environmentally sensitive use of Gooseberry, Fishing, Wood, Whaleback, White and Horn Islands.	CC/HM			X									
1.6	Establish resource management guidelines to preserve Seapoint Beach.	CC		X										
1.7	Revise Seapoint Beach rules to prohibit dogs on the beach between 9 AM and 5 PM from July through August.	CC/TC		X										
1.11	Embark on an educational program to show builders, developers and shoreland residents how they can act to reduce phosphorous build-up.	CC			X									
2.5	Eliminate or reduce non-point sources of pollution by requiring specified data during subdivision and/or site plan review; encouraging appropriate agricultural management practices; and enacting ordinance provisions.	PB/CC				X								
2.8	Develop a program to encourage education on and compliance with state water quality laws.	CC				X								
3.2	Encourage improvements at appropriate, existing, undeveloped Town-owned waterfront parcels to encourage/allow public use of waterfront.	CC/PA	on-going											X

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
3.5	Continue to maintain Fort Foster and Seapoint Beach as primarily non-boating recreation areas and educate public regarding appropriate use of these resources.	CC	on-going											
3.9	Encourage the Kittery Land Trust and other conservation groups to acquire and manage open space in the Town.	CC		on-going										
	PORT AUTHORITY													
2.4	Encourage provision of pumpout facilities for boats at all large private boating facilities (marinas).	PA/PB	X											
2.7	Reduce litter pollution through provision of abundant waste receptacles at beaches, marinas and wharfs.	PA/PW		X										
2.11	Expand the duties of the Harbor Master to include marine resource duties.	PA/HM	X											
2.12	Examine the possibility of a cooperative arrangement in which University of New Hampshire and Cornell University personnel on Appledore Island would report any violations of waterfront-related ordinances to the Harbor Master.	PA/HM		X										
3.2	Encourage improvements at appropriate, existing, undeveloped Town-owned waterfront parcels to encourage/allow public use of waterfront.	CC/PA	on-going											X
4.1	Adopt and maintain new mooring plan which maximizes available mooring areas.	PA		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
4.2	Develop and distribute a large scale map showing the locations of mooring areas, boat launch areas, passive recreational areas and marinas/public wharf areas.	PA			X									
4.6	Revise current mooring fees upward to more closely reflect regional fees.	PA		X										
4.8	Improve Kittery Point Wharf (Pepperrell Cove) for recreational boating.	PA							X					
4.9	Maintain current use of Town Wharf.	PA	on-going											
4.10	Improve boat launch at Traip Academy to include adequate lighting, access, and formal parking and turnaround areas.	PA		X										
4.12	Develop and implement new mooring allocation policy which does not give priority to Kittery residents.	PA/HM	on-going											
5.1	Display and enforce rules and ordinances.	PA		X										
5.2	Develop and enforce ordinances prohibiting anchorage of boats within designated swimming areas at Seapoint Beach and Fort Foster.	PA		X										
6.2	Develop plan and schedule for improvements to Kittery Point Wharf (Pepperrell Cove) for commercial fishing.	PA			X									

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
8.3	Develop design guidelines for docks, slips and marinas which ensure that additional mooring space is consistent with waterfront goals including maintenance of scenic character.	PA				X								
9.1	Raise mooring and license fees to create a capital fund for waterfront acquisition and improvements.	PA		X										
	HARBOR MASTER													
1.4	Establish adequate resource management practices for Smuttynose, Malaga, Cedar, Squash and Duck Islands.	CC/HM			X									
1.5	Encourage environmentally sensitive use of Gooseberry, Fishing, Wood, Whaleback, White and Horn Islands.	CC/HM			X									
1.9	Establish stringent enforcement policies for waterfront ordinances.	PD/HM	X											
2.11	Expand the duties of the Harbor Master to include marine resource duties.	PA/HM	X											
2.12	Examine the possibility of a cooperative arrangement in which University of New Hampshire and Cornell University personnel on Appledore Island would report any violations of waterfront-related ordinances to the Harbor Master.	PA/HM		X										
3.6	Designate swimming areas at Seapoint Beach and Fort Foster.	HM/TM			X									

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
4.12	Develop and implement new mooring allocation policy which does not give priority to Kittery residents.	PA/HM	on-going											
5.3	Enforce existing speed limits for boats in creeks.	HM	on-going											
	TOWN MANAGER													
1.8	Establish and maintain regular contact with Star Island Corporation, notifying them of changes in zoning, environmental issues, etc.	TM		X										
1.10	Manage public improvement projects to protect natural/critical areas.	TM		X										
2.2	Continue to work with State to strengthen water quality/pollution ordinances.	TM	on-going											
3.3	Encourage acquisition of prime waterfront parcels by the Town as parcels become available.	TM	on-going											
3.4	Maintain contact with State Department of Recreation to ensure continued operation and maintenance of Fort McClary as State Park.	TM	on-going											
3.6	Designate swimming areas at Seapoint Beach and Fort Foster.	HM/TM			X									
3.10	Develop an ordinance to prohibit the use of jet skis throughout the Town of Kittery.	TM			X									
4.4	Display and enforce rules and ordinances regarding boating safety.	TM		X										

NO.	RECOMMENDATION	RESPON PARTY	COMPLETION DATE 6/90	12/90	6/91	12/91	6/92	12/92	6/93	12/93	6/94	12/94	6/95	12/95
4.5	Aggressively pursue state and local funding opportunities.	TP/TM	on-going											
4.7	Establish harbor maintenance and management as a line item in the Town budget.	TM/TC		X										
9.2	Explore state and federal grant programs for funding of waterfront acquisitions and improvements.	TP/TM	on-going											
	POLICE DEPARTMENT													
1.9	Establish stringent enforcement policies for waterfront ordinances.	PD/HM	X											
	CLAM WARDEN													
2.6	Establish a shellfish conservation ordinance.	CW			X									
	PUBLIC WORKS													
2.7	Reduce litter pollution through provision of abundant waste receptacles at beaches, marinas and wharfs.	PA/PW		X										
2.10	Revise current snow removal practices and regulate dumping.	PW/PB		X										
	TOWN COUNCIL													
1.7	Revise Seapoint Beach rules to prohibit dogs on the beach between 9 AM and 5 PM from July through August.	CC/TC		X										

SECTION VIII:

APPENDICES

APPENDIX A:

TOWN-OWNED WATERFRONT PARCELS

Town-Owned Waterfront Parcels

Fig. 3 No.	Map/Lot No.	Street	Size in Acres	Current Use
1.	2.64A	Spinney Lane	1.99	Vacant
2.	2.43A	Gray Lodge	.83	Vacant
3.	3.63	Government Street	1.05	Vacant
4.	1.57	Rice Avenue	1.20	Vacant
5.	1.34	Thorners Avenue	.25	Vacant
6.	4.78	Wallingford Square	.10	Town Wharf
7.	9.17	Williams Avenue	7.25	Traip Academy
8.	10.5	Whipple Road	.10	Vacant
9.	17.13	Old Ferry Lane	.15	Vacant
10.	17.5	Bowen Road	.15	Vacant
11.	24.81	Rams Island	2.75	Vacant
12.	24.47	Moore Street		Pump Station
13.	24.35	Phelps Street	20.00	Vacant
14.	15.91	Rogers Road	39.05	Frisbee School (Rogers Park)
15.	25.6A	Bond Road	.10	Right-of-Way
16.	35.18,18E	Rosellen Drive	1.59	Vacant
17.	27.49A	Bellamy Lane	.40	Kittery Point Wharf
18.	51.9	Pocahantas Road	88.90	Fort Foster
19.	44.58	Chauncey Creek	.15	Vacant
20.	58.4,5	Seapoint Road	2.95	Part of Seapoint Beach

APPENDIX B:

SPECIAL HABITATS

Part I: SPECIAL HABITATS

This section discusses the special types of wildlife and fisheries habitats that were identified and mapped for the 17 towns in this study. Each habitat was identified and rated, if appropriate, using the most current information available. Habitats were mapped on mylar overlays using mylar base maps at a scale of 1:10000. The maps are available in the 17 town offices, MDIFW offices, and the State Planning Office. The Special Habitats identified and mapped are:

- * Aquatic habitats
- * Deer wintering areas
- Coastal wildlife concentration areas
- * Colonial nesting seabird islands
- * Wading bird rookeries
- Eagle nest sites
- Osprey nest sites
- Shorebird feeding and roosting areas
- * Seal haul-outs
- * Least tern and piping plover nesting sites
- Other special wildlife habitats

The objectives of this section were to: 1) document known fish and wildlife habitats of special importance to local inland fish and wildlife; 2) discuss the sensitivity of these areas, and 3) present recommendations designed to prevent or minimize the impacts of future growth and development on these natural resources.

* AREAS IDENTIFIED ON ENVIRONMENTAL MAP

Table 1. Summary of the descriptions of special habitats and associated recommendations. (More than one type of special habitat may occur in a site of concern, and may require the application of multiple recommendations).

Special Habitats	Symbol/Rating	Description	Recommendations
	F = Fisheries/W = Wetlands		
Aquatic Habitats	F3	High value ponds, lakes, rivers, and streams for fisheries.	Protect riparian habitat within 250' or more of all F2, F3, W2, and W3 areas. Within the first 100 feet of the riparian buffer, no development or vegetative manipulation should occur other than accepted fish and wildlife management practices or other activities which will not permanently change the site or adversely impact fish and wildlife. Within the remaining 150 feet, timber harvesting should not remove more than 20% of the volume of trees 6 inches or more in diameter, measured at 4 1/2 feet above ground level in any 10-year period. Single openings in the forest canopy should not exceed 14,000 square feet. In such areas, single canopy openings of over 10,000 square feet should be no closer than 100 feet apart. Development should not occur within the outside 150 feet without prior consultation with MDIFW.
	F2	Moderate value ponds, lakes, rivers, and streams for fisheries.	
	W3	All coastal salt marshes, and all wetlands with high value for wildlife.	
	W2	Moderate value wetlands for wildlife.	
	F1	Low value ponds, lakes, rivers and streams for fisheries.	Protect riparian habitat within 100' or more of all F1 and W1 areas. Within this riparian buffer, no development or vegetation manipulation, other than MDIFW approved fish and wildlife management, should occur.
	W1	Wetlands with only slight wildlife value.	
	W5, F5	Indeterminate status.	Consult with MDIFW to determine importance of the habitat and appropriate land uses.
Marine Wildlife Habitats	MWH/A	Areas of national or statewide significance for coastal wildlife, supporting an exceptionally high abundance and diversity of wildlife.	Protect riparian buffer within 250' or more of the mainland and all islands bordering Class A Areas with no development or habitat modification allowed. Modification of the intertidal or submerged lands from activities such as dredging, filling, or placement of permanent or semi-permanent structures or moorings should be restricted. Land uses such as marinas and recreational or industrial developments that would increase water-oriented activities should be avoided. A detailed land-use wildlife conservation plan should be completed.
	MWH/B	Areas of significance within a region of the Maine coast that supports a high abundance and diversity of wildlife.	Protect riparian buffer within 100' or more of the mainland and all islands bordering Class B Areas with no development or habitat modification allowed within it. No more than 15% of the intertidal and submerged lands areas should be altered or modified by activities such as dredging or placement of structures. Land-uses such as marinas and recreational developments could be allowed. Industrial development should not be avoided.
	MWH/C	Areas of local significance that support moderate abundance and diversity of wildlife.	Protect riparian buffer within 100' or more of the mainland and all islands bordering Class C Areas with no development or habitat modification allowed within it. No more than 25% of the intertidal and submerged lands area should be altered or modified by activities such as dredging or placement of structures. Land uses such as marinas and recreational developments are allowed. Light industrial development could also be allowed.

Deer Wintering Areas	D3 D2 D1	High value Deer Wintering Area. Medium value Deer Wintering Area. Low value Deer Wintering Area.	Protect deer wintering areas of moderate and high value (D2 & D3) from development. Development within D1 & D5 wintering areas should be closely regulated to prevent fragmentation or loss of significant habitat. Consult with MDIFW to determine the impact of non-conforming land uses. Timber harvesting in any deer wintering area can remove as much as 20% of the total volume in any 15-year period. Single openings in the forest canopy should not exceed 14,000 square feet. In such areas, single canopy openings of over 10,000 square feet should not be closer than 150 feet apart. Timber harvesting which exceeds these guidelines should be approved by the town in consultation with MDIFW's regional wildlife biologist.
	D5	Indeterminate status.	Consult with MDIFW.
Colonial-Nesting Seabird Islands		Coastal islands used by seabirds for nesting.	Protect existing habitat. Control development and discourage human disturbance during the nesting season (April 1 - August 15).
Wading Bird Rookeries		Location where great blue herons or other wading birds nest.	Protect existing habitat within the colony, control land use activities out to 1320' from the colony perimeter based on recommended levels of protection for 3 concentric buffer zones, and discourage human activity during the nesting season (April 1 - August 15).
Bald Eagle Nest Sites		An active or recently active nest site (since 1962).	Protect the area surrounding nest sites from development. Control land use 1320' from the nest tree based on recommended levels of protection for 3 concentric buffer zones, maintain the integrity of existing shoreland habitat, and protect a supply of nearby alternative nest trees. Discourage human disturbance during the nesting season (February 1 - August 31 in coastal Maine and March 1 - September 30 inland).
Osprey Nest Sites		An active or recently active nest site (since 1980).	Control land use activities within 660' of active nests from April 1 - August 15 in coastal Maine, April 15 - August 15 inland), maintain the integrity of existing shoreland habitat, and minimize human disturbance during the nesting period. Colonial-nesting pairs should be buffered collectively.
Shorebird Feeding and Roosting Areas		Traditional areas of use by large numbers of feeding and roosting shorebirds.	Protect a 250' or more buffer of existing shoreland habitat, discourage activities that would diminish intertidal invertebrate populations, and minimize human disturbance during peak migration (July 10 - September 10).
Seal Haul-Outs		Coastal ledges used by seals.	Discourage disturbance of hauled-out seals, and minimize the risk of oil spill contamination by directing sitings of major marinas and oil tanker shipping lanes away from haul-out ledges.
Least Tern and Piping Plover Nest Sites		Sand beaches used by least terns and piping plovers for nesting.	Specific recommendations have not been developed at this time but will be directed toward protecting habitat and preventing human disturbance during the nesting season. An MDIFW regional biologist should be consulted.
Other Special Wildlife Habitats		Areas of special management concern for wildlife, not included in the preceding descriptions.	Recommendations will vary with the type of habitat. An MDIFW regional biologist should be contacted for specific recommendations.

A. AQUATIC HABITATS

1. **Sensitivity.** Aquatic habitats, which include brooks, creeks, rivers, and streams, great ponds and lakes, inland and coastal wetlands; marine wildlife habitats; and the extremely important riparian zones that adjoin them, are habitat types of exceptional value to a wide array of fish and wildlife species. They are also some of the most sensitive and vulnerable habitat types.

   The importance and sensitivity of all wetlands, regardless of size, is well documented. Wetlands and tidal flats provide critical habitat for nesting and migrating shorebirds, wading birds, waterfowl, gulls, terns and raptors. Salt marshes and tidal flats also provide essential habitat for commercially sought fish species, worth millions of dollars annually to Maine fisherman (Townsend and Briggs 1982).

   The "riparian zone" is the upland area immediately adjacent to a lake, stream or wetland. It functions to protect the water quality and the wildlife values of the adjacent aquatic habitat. It also provides a special habitat utilized by many animals as part of their home range or as a travel corridor for movement between undeveloped forested areas. Specifically, riparian zones:

   --provide essential habitat for a diversity of vertebrate species;

   --serve as natural filtration systems trapping and assimilating excessive nutrients, sediments and other pollutants from upland areas, thereby maintaining aquatic habitat water quality;

   --maintain suitable water temperatures for aquatic life; and

   --provide vegetation and invertebrates as food for a variety of fish and aquatic wildlife (summarized from Brinson et al. 1981, Thomas et al. 1979, Curtis and Ripley 1975).

   A more complete discussion of the importance of riparian zones for fish, birds, and mammals is contained in Appendix 3.

2. **Methods.** This report separates aquatic habitats into three types: fisheries, inland and coastal wetlands and marine wildlife habitats.

a. **Fisheries Habitats (F):** Fisheries habitats associated with streams and lakes were identified, evaluated, and mapped in this project (refer to Appendix 4 for detailed information).

Streams (including brooks, creeks, and rivers) were identified using the stream inventory file developed by MDIFW. Data collection included a determination of fish species present, basic water quality and habitat descriptions. In addition, data on drainage areas, lengths, widths and areas of streams, general surficial geology, and the presence or absence of known aquifer areas were collected from field surveys, maps and other available sources.

Lakes (including ponds) were identified using the computerized lake inventory file (Maine Information Display Analysis System, MIDAS) developed by MDIFW. Only "great ponds" (defined as any natural water body 10 acres or larger or any impoundment greater than 30 acres if bordered by more than one property owner) were included in this study. Data on physical shape, water quality, and fisheries were collected from each lake.

A systematic method was developed to rate lake and stream habitats based on their fisheries value. These habitats were placed in one of three rated categories (F1, F2, or F3) or an indeterminate category (F5) based on their characteristics (Table 2).

b. **Wetland Habitats (W):** Both inland and coastal wetlands were identified, evaluated, and mapped using data from MDIFW's wetland inventory and from the Maine Geological Survey's (MGS) wetland inventory. MDIFW's wetland inventory is designed to be a continuous study to identify and rate wetlands for their value to waterfowl. The inventory was initiated in 1965 and is based on aerial photographs and/or ground surveys conducted by department personnel. The inventory includes all wetlands 10 acres or more in size as well as some smaller ones. Numerous wetlands less than 10 acres are rich in wildlife, contribute to groundwater recharge, and act as natural filtration mechanisms. Although these wetland areas were not included in this report, they are still valuable and perform many of the same functions.

Table 2. Rating and description of fisheries habitats (streams and lakes).

Category	Value	Habitat Type	Description
F3	High	Streams	a) Highly suitable habitat to support game fish,
			b) Contains fish species which are highly sensitive to changes in physical features, water quality, or temperature,
			c) contains fish species which are rare within study area,
			d) has a quality fishery in high demand,
			e) habitat area of greater than 10 acres occurring within main stem of the stream, and
			f) high economic importance.
		Lakes	a) High water quality,
			b) heavy fishing pressure,
			c) high species abundance,
			d) high species diversity,
			e) contains fish species which is rare within the study area, and
			f) fish species have high incidence of natural reproduction.
F2	Medium	Streams	a) Moderately suitable habitat to support game fish,
			b) contains fish species which are moderately sensitive to changes in physical features, water quality, or temperature,
			c) contains fish species which are moderately common within study area,
			d) has a quality fishery in moderate demand,
			e) habitat area of from 5 to 10 acres occurring within main stem of the stream, and
			f) moderate economic importance.
F2	Medium	Lakes	a) Moderate water quality,
			b) moderate fishing pressure,
			c) moderate species abundance,
			d) moderate species diversity and rarity, and
			e) moderate incidence of natural reproduction.
F1	Low	Streams	a) Low suitable habitat to support game fish,
			b) contains fish species which are tolerant to changes in physical features, water quality, or temperature,
			c) contains fish species which are common within study area,
			d) fishery in low demand,
			e) habitat area of less than 5 acres occurring within main stem of the stream, and
			f) low economic importance.
		Lakes	a) Low water quality,
			b) fishery in low demand,
			c) low species abundance,
			d) poor species diversity,
			e) species very common, and
			f) minimal or no incidence of natural reproduction.
F5	Indeter-minate	Streams & Lakes	a) mapped or not mapped
			b) not evaluated or rated as F1, F2, or F3

Wetlands were rated based on their waterfowl habitat value. Wetlands were placed in one of three categories (W1, W2, or W3) if from MDIFW inventory, or an indeterminate category (W5) if from MGS inventory (Table 3). A list of the wetland types and their descriptions used in MDIFW's wetland inventory is found in Appendix 5.

c. **Marine Wildlife Habitats (MWH):** Marine Wildlife Habitats are locations along the Maine coast which support large numbers of marine birds and seals. These concentration areas are generally associated with islands, ledges and inter-tidal "flats". A combination of aerial surveys and ground surveys and censuses were used to identify these areas. These surveys were conducted during the winter, spring migration, nesting, post-nesting and fall migration periods. The seasonally mapped observations of marine birds and seals were then analyzed to identify and rank Marine Wildlife Habitats.

MWH's were delineated by drawing a line around clumped observations seaward to the thirty-foot depth contour when possible, or a distance of approximately 300 feet from the central geologic feature with which the animals were associated. For those areas adjacent to the mainland or islands, the shoreward limit of the wildlife area is 250 feet above mean high water. Each area was rated based on the diversity, abundance and rarity of the wildlife it supported. A full description of the survey and rating methods can be found in the Penobscot Bay Conservation Plan (Woodward et al. 1987). The data for identifying and rating marine wildlife habitats are from two recent projects conducted by MDIFW (Hutchinson and Ferrero 1980, Hutchinson and Lovett 1983). Data for 5 towns (Kittery, Biddeford, Saco, Old Orchard Beach, and Scarborough) were not collected in these previous projects; therefore, marine wildlife habitats in these towns were not identified. Information in these towns is currently being collected and will be available from the Regional Wildlife Biologist.

Marine wildlife habitats were classified into one of three categories based on their significance to coastal wildlife (Table 4).

3. **Recommendations::**

a. **Fisheries (F) & Wetland (W) Habitats:**

Distances used in the recommendations are

Table 3. Rating of wetlands based on waterfowl habitat value.

Rating	Value	Description
W3	High	a) Excellent waterfowl habitat, b) heavy use by ducks and/or geese, and c) all coastal salt marshes.
W2	Moderate	a) Lacking in one or more aspects of prime habitat, b) significant use by ducks and/or geese, and c) would respond favorably to management.
W1	Low	a) Deficient in habitat requirements, b) limited use by ducks and/or geese, and c) generally would not respond favorably to habitat management.
W5	Indeterminate	a) Very poorly drained soils, and b) not evaluated.

Table 4. Classification of marine wildlife habitats.

Class	Value	Description
MWH A (Class A)	Exceptional	a) Areas of national and/or state significance for coastal wildlife, b) Very high species abundance and diversity, and/or c) Includes rare and endangered species.
MWH B (Class B)	High	a) Areas utilized by more common species with regularity, and b) High species abundance and diversity.
MWH C (Class C)	Moderate	c) Areas of documented but moderate wildlife use.

measured in the following manner:

F1, F2, F3 and F5 areas - distance is measured horizontally from the seasonal high water mark (Figure 2).

W1, W2, W3, and W5 - for coastal wetlands, the distance is measured horizontally from an identifiable debris line left by tidal action, edge of tidal action or normal storm flowage, or from the edge of vegetation present that is tolerant of salt water and

- for inland wetlands, the distance is measured from the normal high water mark which is identifiable by apparent visible markings, changes in soil character due to the prolonged action of water, or from changes in vegetation from predominantly aquatic to predominantly terrestrial.

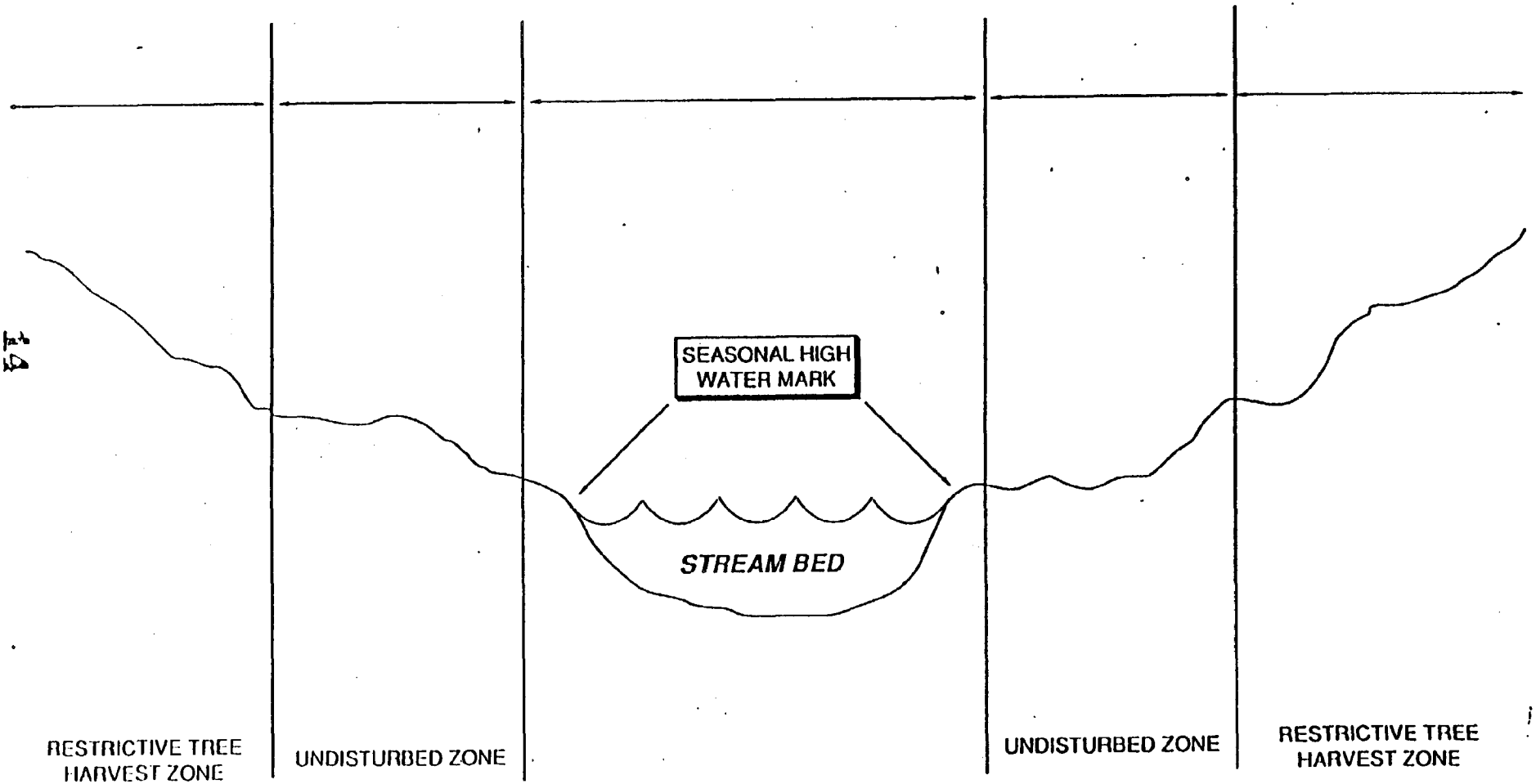
W3, W2, F3,and F2--Existing riparian habitat should be maintained within 250' or more of all W3, W2, F3 and F2 areas. For F2 and F3 areas, the 250'riparian area includes protection for wildlife habitat as well as water quality and fisheries habitat.

The first 100 feet of riparian habitat should be protected from human disturbance.

Within the remaining 150 feet, timber harvesting should not remove, in any ten year period, more than 20 percent of the volume on each acre involved of trees six inches in diameter and larger measured at 4 1/2 feet above ground level. Single openings in the forest canopy should not exceed 14,000 square feet. In such areas single canopy openings of over 10,000 square feet shall be no closer than 100 feet apart. Development should not occur within this area without consultation with the MDIFW Regional Wildlife Biologist.

Direct filling of wetlands, which eliminates or alters their unique characteristics, should generally be considered unacceptable. Appropriate state and federal laws and permitting requirements must be fulfilled.

FIGURE 2
STANDARD METHOD FOR MEASURING RIPARIAN ZONE



W1, F1--Existing riparian habitat should be maintained within 100' or more of all F1 and W1 areas. New development or vegetation manipulation, other than MDIFW-approved fish and wildlife management practices, should not occur within this zone.

Direct filling of wetlands, which eliminates or alters their unique characteristics, should generally be considered unacceptable. Appropriate state and federal laws and permitting requirements must be fulfilled.

W5, F5--Prior to any activity within 250 feet of a W5 or F5 area, MDIFW should be consulted to determine the significance of the fisheries or wetland habitat and the appropriate management recommendations.

b. Marine Wildlife Habitats (MWH):

The land use recommendations for MWH's are designed to protect the wildlife values within each of the three habitat categories. In many instances, MWH's include "Special Wildlife Features" within their boundaries such as eagle nest sites, colonial nesting seabird islands, shorebird roosting and feeding areas, or seal haul-outs. When such Special Features occur, the specific recommendations for each feature (presented in later sections of this report) should be followed as well.

MWH A (Class A Area)--An area of national and/or state significance for coastal wildlife.

Class A Areas, including the intertidal lands, submerged lands, and surrounding riparian zone should be protected and maintained. Existing habitat should not be degraded through alteration or development.

Existing habitat should be maintained within a 250' or more riparian buffer on the mainland and all islands included within Class A areas. New development or other modification to the existing habitat should not occur within this area, except for MDIFW approved wildlife management practices. Also, no additional modification of the intertidal or submerged lands should be allowed by activities such as dredging, filling, or placement of permanent or semi-permanent structures or moorings.

Increased water oriented activities within or adjacent to these areas, such as marinas and recreational or industrial developments are not compatible land uses.

A detailed land use plan should be prepared for each Class A Area. This plan should be prepared by municipal land use planners in consultation with the MDIFW.

Key parcels in Class A areas, such as eagle nest sites, colonial nesting seabird islands, other Special Wildlife Features, or strategically located, undeveloped habitats in the riparian zone should be targeted for special protection through acquisition, conservation easements, or landowner management agreements.

MWH B (Class B Area): An area within a region of the Maine coast of significance for coastal wildlife.

Existing habitat should be maintained within a 100'or more riparian buffer on the mainland and all islands included within Class B areas. New development or other modifications to the existing habitat should not occur within this area except for MDIFW approved wildlife management practices. Also, no more than 15% of the intertidal and submerged lands area should be altered or modified from activities such as dredging or placement of structures.

Land-uses that would increase water oriented activities such as marinas and recreational developments could be allowed. However, industrial development should not occur within these areas.

If any Special Wildlife Features occur, their specific management guidelines should be applied.

MWH C (Class C Areas): An area of local significance for coastal wildlife.

Existing habitat should be maintained within a 100'or more riparian buffer on the mainland and all islands included within the Class C areas. New development or other modifications to the existing habitat should not occur within this area except MDIFW wildlife management practices. Also, no more than 25% of the intertidal and submerged land area should be altered or modified from activities such as dredging or placement of structures.

Land-uses that would increase water oriented activities such as marinas and recreational developments are allowed. Light industrial development could also occur without affecting the value of the area.

If any Special Wildlife Features occur, their specific management guidelines should be applied.

B. DEER WINTERING AREAS

1. Sensitivity. Winter has long been considered a bottleneck for the survival of white-tailed deer in the Northeast (Severinghaus 1947). During winter, deer in northern climates subsist on often limited quantities of low quality foods, while simultaneously coping with the stresses of low temperatures, chilling winds, and higher energy requirements (Lavigne 1986). When confronted with thermal stress, deer must increase their metabolic heat production and conserve energy to survive. In Maine, studies indicate that mortality of deer can exceed 35% of the wintering deer herd during a severe winter (Hugie 1973). Frequent severe winters or marginal winter habitat may reduce the deer population to a small fraction of the carrying capacity of its summer range (Potvin and Huot 1983).

   The primary behavioral mechanism for deer to conserve energy during winter is to move to traditional wintering areas or "deer yards". During winter, deer concentrate into ranges that are only 20-30% the size of their summer range (Bozenhard pers. comm.). These Deer Wintering Areas (DWA's) provide deer with shelter from radiant heat loss as well as improved mobility in snow (Mattfeld 1974). The dense canopy of softwood cover in a DWA moderates the effects of winter by maintaining warmer than average temperatures and by greatly reducing wind velocity (Lavigne 1986). The dense cover also intercepts much of the snow fall and ground accumulations are packed firmly (Ozoga 1968). This makes travelling much easier for deer and decreases their energy demands.

   Deer subjected to milder winters (ie. southern Maine) require shelter of lower quality than deer inhabiting more severe winter environments (Gill 1957, Banasiak 1964). However deer surviving on diets of woody browse readily seek and use winter shelter even in the absence of restrictive snow depths (Ozoga and Gysel 1972).

   New development and other modifications to the habitat within traditional deer wintering areas reduce the overall ability of an area to support deer during periods of severe winter weather. The more development which occurs within these areas, the greater the impact on local deer populations. The availability of high quality winter range allows a higher winter population of deer, and enables them to more fully occupy their summer habitat.

2. **Methods.** Wintering areas for deer were identified using aerial and ground surveys. A Cessna 172 was flown at an altitude of 500 feet or lower and at a speed of approximately 100 miles per hour. Seven flights were conducted between 16 January and 27 February, 1987, and ranged from 2 to 4 hours long. Flight transects were followed from lines drawn on 7.5 minute topographical maps, and each transect was 0.5 mi apart. Two observers searched for evidence of tracks from opposite windows of the plane. When tracks or deer were seen, the area was marked on the map.

Once areas were identified from the air, color infrared photos were used (when available) to position transects for the ground survey. These transects were walked and the following features were noted: 1) dominant overstory type (softwood, hardwood, or mixed), 2) approximate height, 3) crown closure, 4) available browse species, 5) evidence of deer tracks, trails, pellets, beds, or browse.

The information collected during the winter ground surveys was used to evaluate each DWA according to the following seven major criteria:

Access - Considered the distance from the DWA to the nearest all weather roads. Areas with easy access were considered to be of greater value.

Shelter Quality - Considered tree species composition, stand size and aspect. Areas with mature softwoods, a high canopy closure and a southern exposure were considered to be optimum shelter.

Browse Availability - Considered browse that is currently available and the potential for existing stands to produce browse under more intensive management. Areas with available browse or the potential to produce browse with management, were considered to be of greater value.

Relationship to Other DWAs - Considered relative proximity to other DWAs. Areas at least three to five miles apart were considered to be of more value.

Size - Considered shape and acreage. Large areas with a high degree of linearity were evaluated to be of greater value.

Deer Population--Considered the amount and frequency of deer use (tracks, trails, beds, pellet groups) observed during the field survey. Areas with heavy, continuous deer sign were considered to be over-wintering $\geq$ 50 deer/mi^2. These areas were considered to be of greater value.

Operability of the Forest Stands (Exclude Access)--The general intent of DWA management is to maintain a proper balance of winter cover and food for the deer utilizing the area. This balance is created and maintained through periodic timber harvesting in the wintering area. Deer Wintering Areas in which timber management and harvesting can be easily implemented and executed have high operability. Deer Wintering Areas with high operability were considered to be of greater value.

Each DWA was rated by evaluating each of the components which make up the seven criteria above (Appendix 6) and assigning a value of 1 through 5 to each criteria. A value of one represented the least desirable condition, while 5 represented the most desirable.

Following the evaluating procedure, each DWA was rated and placed in one of three value categories or an indeterminate category for areas which have not yet been rated (Table 5).

Based on the aerial surveys and ground checks, boundaries for each DWA were developed, which included the winter cover area and adjacent foraging areas, using color infrared (1:15,000) or black and white (1:60,000) aerial photos.

3. **Recommendations.** New development is generally not compatible with the maintenance of suitable conditions within deer wintering areas and should be very closely regulated, and in most cases not permitted in areas of moderate (D2) or high (D3) value. Prior to any development within areas of low (D1) or indeterminate (D5) value, it is recommended that IF&W be consulted in the formulation of specific land use restrictions to prevent fragmentation or loss of significant habitat.

Timber harvesting is an essential component of

Table 5. Rating and Description of Deer Wintering Areas (DWAs)

Rating	Value	Description
D3	High	Received a value between 22-35 in the evaluation procedure. These DWA's constitute excellent deer winter range. They are critical to achieve goals and objectives in MDIFW's Whitetail Deer Species Plan.
D2	Moderate	Received a value between 18-21 in the evaluation procedure. These areas are lacking in several of the components of prime habitat, although through management these deficiencies may be corrected. These areas are important to achieve goals and objectives in MDIFW's Whitetail Deer Species Plan.
D1	Low	Received a value between 7-17 in the evaluation process. These areas may periodically provide shelter for small numbers of deer, however, they do not possess the characteristics associated with better winter cover. These areas may not be essential to MDIFW's whitetail deer goals and objectives.
D5	Indeterminate	These areas have not been rated.

deer wintering area management and should be a permitted activity. The general goal in managing DWA's is to maintain approximately 50% of the area in mature conifer forest types. The individual conifers in mature softwood stands are generally older than 45 years of age, are taller than 35' high and are 7-8" or larger in diameter at breast height (4 1/2 feet above ground level). To maintain approximately 50% of the wintering area in mature conifer cover, each landowner can harvest as much as 20% of the total timber volume on his ownership in any 15 year period. In addition, single openings in the forest canopy created during timber harvesting should not exceed 14,000 square feet. In such areas, single canopy openings larger than 10,000 square feet shall be no closer than 150 feet apart.

Non-permanent, minimal disturbance (light or no bulldozing and no graveling of the travel surface) roads are recommended when a land management road must be located in a DWA to allow access for timber harvesting. The disturbed right-of-way for these roads shall not exceed 30 feet. The road should be limed, fertilized and seeded following timber harvesting activities.

Land management activities which are not in conformance with these general recommendations, or which are not specifically addressed by them, should be addressed in a management plan, developed by the landowner, a licensed forester, or a wildlife biologist, and submitted to the town for approval. Consultation with the appropriate MDIFW regional wildlife biologist prior to the formulation of any deer wintering area management plan is strongly recommended.

The town should have the MDIFW regional wildlife biologist review the deer wintering area management plans prior to granting approval.

C. COLONIAL NESTING SEABIRD ISLANDS

1. Sensitivity. Between three and four thousand islands and exposed ledges occur along the Maine coast. Three hundred and fifty of these are of special significance because they are used as traditional sites by twenty species of colonial-nesting seabirds.

   Many of these birds are at the northern or southern limit of their range. For several species (common eider, black guillemot, Atlantic puffin, razorbill auk, great cormorant, Leach's storm petrel), Maine is the only state within the contiguous 48 states with breeding populations.

   Populations of colonial nesting seabirds throughout Maine were decimated by the late 1800's by overharvesting for meat, eggs, and feathers. The growing list of vanishing species sparked national interest, and was the issue of concern which prompted formation of the National Audubon Society and led to the drafting and promulgation of the Migratory Bird Treaty Act of 1918.

   Those birds which survived the excessive exploitation of the 19th century responded well to the protective legislation, which coincided with the collapse of many island-based economies. Numerous island communities were abandoned, allowing historic seabird islands to be recolonized by colonial nesting seabirds. It is of the utmost importance to understand that both the protective legislation and the off-island emigration of people were requisite to the rapid recovery of many species which we have observed during the past six decades. Had 19th century levels of human disturbance and occupation of breeding habitat been maintained, existing legislation alone would not have produced this recovery.

   Colonial nesting marine birds are extremely vulnerable to the effects of development and associated human disturbance during the nesting season. Disruption of nesting birds at this critical time can result in excessive mortality of chicks and eggs from predation and exposure.

The recent explosion of development along the coast is threatening to reverse this recovery through the escalating demands on islands for recreation and homesites.

2. **Methods.** Ground surveys and censuses were conducted between 1981 and 1986 to identify and inventory colonies of nesting seabirds. Islands were identified for ground surveys by historic records, the sightings of birds, or the presence of suitable habitat. Islands found with nesting marine birds were censused using direct nest counts and/or visual estimates of adult birds.

3. **Recommendations.** The recommendations presented in this section are broad. They are an attempt to address the full range of possible situations that may arise when human activity influences colonial nesting seabird islands. Where there is doubt about the interpretation or application of these recommendations, it is strongly recommended that the appropriate MDIFW regional wildlife biologist be contacted for assistance.

   From April 1 to August 15, human use of these islands should be discouraged. Activities around the islands should be conducted far enough off shore to prevent flushing birds from nests (approximately 1/4 mile).

   Development or building should not occur on seabird nesting islands, except in very rare cases where the nesting colony is located in a relatively small area of a large island, and adequate visual buffers (equal to or greater than 250 feet) can be maintained to prevent disturbance. Limited construction should only occur after review and approval by an MDIFW wildlife biologist.

   Recommendations for human use of any seabird nesting island can be developed by the appropriate MDIFW regional biologist and implemented through cooperative agreements with private landowners and state agencies having ownership of, or jurisdiction over, seabird islands. In general, low intensity recreational use, such as picnicking and hiking, can be permitted outside the nesting season. The building of fires should be prohibited at all times.

D. WADING BIRD ROOKERIES

These recommendations were developed for great blue herons but in general can apply to other wading birds such as snowy egrets, glossy ibis, black-crowned night herons, tri-colored herons, and little blue herons.

1. Sensitivity. The stately great blue heron is the largest and most well-known of Maine's wading birds. Returning to the state in March or April from their more southerly wintering grounds, adult herons reclaim nests from the previous year in colonies ranging in size from two to over two hundred nesting pairs. During the nesting season (approximately 1 April through 15 August) nests are repaired or built anew, and clutches of 3-4 eggs are laid and incubated. The young hatch in late May or early June. Young are fed on the nest until they fledge in July or August, at which time the birds abandon the nesting colony and disperse to coastal and inland feeding areas. Fall migration extends into November, with an occasional bird or two remaining in coastal areas during mild winters.

   Great blue herons feed on a variety of fresh and salt water organisms. Small fish and marine invertebrates are captured in tidal pools and creeks. Frogs, small fish, and the larger freshwater invertebrates are taken in shallow fresh-water habitats. The great blue heron is extremely vulnerable to the cumulative effects of

areas. Human disturbance of a nesting colony can cause: 1) abandonment of the entire colony; 2) mortality of eggs and young from predation (gulls, ravens, eagles) and exposure; and 3) starvation and predation of young that leave the nest before they are able to fly (adults will not feed young on the ground).

2. **Methods.** Heron rookeries were located from information obtained from a variety of sources. Historical records and observations during aerial and ground surveys provided the majority of the locations. Historical nesting sites which continued to have suitable habitat were mapped even if not active every year. The nesting colony is delineated by the outer-most nest trees of the colony.

3. **Recommendations.** The recommendations presented in this section are broad. They are an attempt to address the full range of possible situations that may arise when human activity influences wading bird rookeries. Where there is doubt about the interpretation or the application of these recommendations, it is strongly recommended that the appropriate MDIFW regional wildlife biologist be contacted for assistance.

   Alteration of existing natural habitat within a rookery and land use changes within 1/4 of a mile of the perimeter of a rookery can have a significant impact on future welfare of a wading bird colony. In managing wading bird colonies, recommendations have been developed for the nesting colony and for three concentric buffer zones around it.

   The natural habitat within 330' of the colony should not be modified unless such actions are deemed essential to improve or maintain nesting opportunity by an MDIFW wildlife biologist. Human use of the area should be discouraged during the critical nesting period (April 1 - August 15).

   Incompatible year-round activities:

   - Timber cutting without consultation with an MDIFW wildlife biologist,
   - Land clearing without consultation with an MDIFW wildlife biologist, and
   - Road, trail, or building construction.

Incompatible activities during the nesting period:

- Repeated human visitation.

Compatible Activities during the non-nesting period:

- hiking, fishing (recreational and commercial) and agricultural activities.

The area 330-660 feet from the colony perimeter should be limited to light land-use activities conducted only during the non-critical nesting period. Timber harvesting should not remove more than 20% of the available stand volume in any 10-year period in this zone. Stand openings created by cutting should be distributed evenly and each should not exceed an area of 7,500 square feet.

Incompatible year-round activities:

- Clear cutting,
- Land clearing (openings greater than 7,500 square feet), and
- Building permanent structures, roads, or trails.

Compatible activities during the critical nesting period:

- Minimal human activity, and
- Farming or commercial fishing if MDIFW wildlife biologists have found that nesting birds are tolerant of these activities.

Compatible activities during the non-nesting period:

- Hunting, fishing, hiking, farming,
- Selective thinning or maintenance of timber stands using the guidelines stated above, and
- Maintenance of existing roads or trails.

The area 660-1,320 feet from the colony perimeter should also be protected from human disturbance. The construction of buildings and roads in this zone can impact the rookery. If the construction of a road or building appears warranted, a MDIFW wildlife biologist should be consulted prior to its beginning. Specific sites valuable to wading birds (perching areas or potential nest trees) should be preserved, but there are no other land use restrictions for activities conducted during the noncritical period.

Because the effects of human disturbance to a colony depend on several factors (including the stage of the nesting cycle, habituation to human activity, size of colony and type of habitat surrounding the colony), any subdivisions or indistrial or commercial developments proposed within one mile of a heronry should be reviewed in consultation with MDIFW to assess potential effects to the colony.

E. BALD EAGLE NEST SITES

1. **Sensitivity.** The bald eagle is the largest bird in Maine, having a wingspan of 7 to 8 feet and weighing from 8 to 15 pounds. They attain their adult plumage (a white head and tail) at 5 years of age, at which time they choose a mate for life. Bald eagles build large stick nests usually in prominent white pines or spruces located within one mile of marine habitats, shallow lakes and ponds, or along larger rivers. A pair of eagles returns to the same nest site yearly and will sometimes maintain up to 7 nests within their nesting territory. Bald eagles eat primarily bottom-dwelling fish during the summer months, but shift their diet to birds (primarily waterfowl and gulls) and carrion during the winter. Adult eagles remain near their nest year-round, however, young eagles may wander as far south as Chesapeake Bay before returning to Maine to nest. Eagles from Maine and the region from the Maritime Provinces and Ontario to Saskatchewan are known to winter in Maine. In addition to nesting areas, bald eagles require perch sites and winter roost sites located near feeding areas.

   The bald eagle was declared an Endangered Species on the Federal Register in Maine and 43 other states in 1978, and is listed as endangered on the State of Maine Endangered Species List. Maine has the only nesting population of bald eagles in New England. In 1986, 85 pairs of eagles were found nesting in Maine and they produced 75 young. Reproductive rates in Maine remain lower than other populations in North America. However, because of the increased survival of young eagles, due in part to a winter feeding program, the population is still increasing. Protection of traditionally used nesting territories is a key factor in the long-term recovery of Maine's bald eagle population.

   Human influences such as disturbance around nest sites, shooting, environmental pollution, and habitat alteration have affected bald eagle populations. Bald eagle numbers in Maine began a slow but steady decline in colonial times, primarily as the result of habitat loss and human persecution. This decline was greatly accelerated in Maine after 1945, when DDT and other organochlorine pesticides were used extensively for spruce budworm and agricultural pest control. These pesticides caused reproductive failure in many birds of prey, and were banned from use in

North America in 1972. Bald eagles and other birds of prey have since responded with improvements in their reproductive success. Because of slow decomposition rates in Maine's forest soils, DDT still adversely influences the production of some pairs.

Nevertheless, Maine's bald eagle population continues to produce more young each year. New breeding pairs of bald eagles in Maine have been found in recent years, and most often resume use of historic nest sites that were abandoned in the 1950's and 1960's.

Today, a tremendous increase in land development and recreation is occurring in mid and eastern coastal regions, and has already modified western coastal areas formerly occupied by nesting eagles. Habitat protection and management, particularly at and adjacent to the nest site, are essential to the recovery of bald eagles in Maine.

2. **Methods.** Annual aerial surveys are conducted in April to check historical and/or known active territories for use and to verify reports obtained during the previous year. Historic nest sites which continue to have suitable habitat were mapped even if not active in recent years.

3. **Recommendations.** New development and associated human activity within 1/2 mile of an active eagle nest can impact nesting success, and the maintenance of local bald eagle populations. The recommendations presented in this section are broad. They are an attempt to address the full range of possible situations that may arise when human activity influences bald eagle nest sites. Where there is doubt about the interpretation or the application of these recommendations, it is strongly recommended that the appropriate MDIFW regional wildlife biologist be contacted for assistance.

   Eagles have a prolonged nesting season during which they are extremely sensitive to disturbance. Any activities near the nesting territory may be harmful from the time adults arrive at a nest to the period when young eaglets disperse in late summer.

   General dates for this critical period are:

   Coastal Maine - February 1 - August 31
   Interior Maine - March 1 - September 30

The first 2 months of the nesting season (courtship, nest repair, egg-laying, incubation, and hatching) are especially critical, and disturbances may cause nesting failure or even abandonment. Adult eagles may occupy nesting territories throughout the year, particularly in coastal regions.

Protection recommendations consist of three concentric buffer zones which become less restrictive as the distance from the nest increases. This conforms with the protection suggested in national recovery plans for bald eagles. Suggested shoreland zoning districts are those defined by the Maine Shoreland Zoning Act.

The area 330 feet from the nest should be maintained as an undisturbed nesting sanctuary. The natural habitat should be protected unless such actions are deemed essential to site preservation by an MDIFW wildlife biologist. Recreational activities (hunting, fishing, hiking, boating) should be discouraged during the critical nesting period.

Incompatible year-round activities:

- Timber cutting without consultation with an MDIFW wildlife biologist,
- Land clearing without consultation with an MDIFW wildlife biologist,
- Road, trail, or building construction, and
- Repeated human visitation.

Compatible activities during the non-nesting period:

- hiking, fishing (recreational and commercial), and agricultural activities.

The area 330-660 feet from the nest should be limited to light land-use activities conducted only during the non-critical period. Any timber harvests should not remove more than 20% of the available stand volume in any 10-year period in this zone. Stand openings created by cutting should be distributed evenly and each should not exceed an area of 7,500 square feet.

Incompatible year-round activities:

- Clear cutting,
- Land clearing (openings greater than 7,500 square feet), and
- Building permanent structures, roads, or trails.

Compatible activities during the critical nesting period:

- Human activity, if minimized, and
- Farming or commercial fishing is possible if MDIFW wildlife biologists have found that nesting eagles are tolerant of these activities.

Compatible activities during the non-nesting period:

- Hunting, fishing, hiking, & agriculture,
- Selective thinning or maintenance of timber stands using the guidelines stated above, and
- Maintenance of existing roads or trails.

The area 660-1,320 feet from the nest should also be protected from human disturbance, and specific sites valuable to eagles (perching areas or potential nest trees) preserved. Construction of buildings and roads in this zone will likely affect the suitability of the nest site.

If construction of roads or buildings appears warranted, a wildlife biologist should be consulted prior to their beginning. Buildings and roads should be out of the line of sight from the nest and conform to at least a 100-foot setback from the shoreline. The integrity of the shoreline vegetation should be maintained by restricting cutting along the shoreline and large snags should be retained for perch trees.

Eagle nests may be affected by activities more than 1320 feet from the nest and activities beyond 1320' from the nest may impact nesting success. individual basis.

Other recommendations:

1) A supply of mature trees should be maintained in the area since eagles prefer old-growth trees to perch and build their nests. Tall white pines are the favored nest and perch trees for eagles in Maine.

2) Nearby shorelines offering perch trees are an important component of the nesting habitat and should be preserved in a natural state. These restrictions generally conform with local Shoreland Zoning ordinances.

3) Site enhancement measures (e.g. posting, making snags available as perch trees, structural bracing of a nest in poor condition, and even building an artificial nest) are feasible and can be evaluated on a site by site basis.

4) Maine's coastal bald eagle population is presently expanding westward, recolonizing historic territories. Areas with documented use by nesting bald eagles since the first systematic eagle surveys began in 1962, should therefore be protected from major habitat alterations and large scale human development.

F. OSPREY NEST SITES

1. Sensitivity. The osprey or "fish hawk" is a common bird of prey in Maine, and has a wingspan of 4½ to 6 feet. In flight, ospreys are distinguished from bald eagles by their white underparts, a dark patch at the sharp bend or "wrist" of the wings, and their habit of hovering before diving into the water to capture fish. They attain maturity at 3 years of age, at which time they choose a mate for life and begin building a large stick nest that they will return to annually. Osprey nests are typically near water, atop snags or live trees having dead, broken tops, but they occasionally nest on exposed rock ledges. Some ospreys are tolerant of human activity and build their nests on channel markers, utility poles and towers, and artificial platforms. A pair of ospreys may maintain 2 or 3 nests within their territory, selecting one to nest in each spring. At some sites in Maine, ospreys nest in colonies of 2 to 11 pairs. In the fall, both adults and young migrate to Central and South America, going as far south as Argentina and Chile. The young birds remain there until maturity; then they return to nest near their place of birth.

   The osprey population in Maine, as in many other regions of North America, is recovering from a dramatic decline. Like bald eagles, ospreys are extremely sensitive to environmental contaminants. Ospreys are still classified as endangered in 8 states and threatened in 20 others. However, because of their greater reproductive rates and higher tolerance of human activity, the osprey population in Maine has increased dramatically during the last decade. Survival of these birds depends increasingly on the species' ability to associate with humans. Nesting habitat adjacent to foraging areas continues to be lost, and many birds are forced to adapt to man-altered habitats. As a result, public awareness of ospreys has increased in recent years, and entire communities are now participating in osprey management projects, including artificial nest programs and protection of natural nest sites.

2. Methods. Nests were located during a 1981 aerial survey specifically for osprey (only part of study area), the 1981 or 1982 coastal aerial surveys, and the ground surveys of seabird nesting islands. Osprey nest locations are most likely incomplete because there is a regular turnover of nest sites by ospreys.

3. **Recommendations.** The recommendations presented in this section are broad. They are an attempt to address the full range of possible situations that may arise when human activity influences osprey nest sites. Where there is doubt about the interpretation or the application of these recommendations, it is strongly recommended that the appropriate MDIFW regional wildlife biologist be contacted for assistance.

The strong recovery of osprey populations in most parts of Maine, the birds'versatility of nest site selection, and the large turnover rates of nest sites, indicate that intensive site specific management is not required. As a general rule, during the critical nesting period disturbance to osprey nests should be discouraged. General dates for the critical nesting period are:

Coastal Maine: April 1 to August 15
Interior Maine: April 15 to August 15

The first 2 months of the nesting season (courtship, nest repair, egg laying, incubation, and hatching) are the most critical. Disturbances that cause an incubating or brooding bird to flush from the nest can cause nesting failure. Ospreys use a loud chirping call or will even attack when visitors venture too close to the nest. These behaviors should be sufficient warning to leave the nesting area. Signs warning the public to maintain respectable distances from nesting birds should be erected.

During the critical nesting period, human activity should be minimized and should exclude construction of major roads and buildings within 660' of an active nest. Ospreys are variable in the amount of human disturbance they will tolerate. Generally, pairs that build nests in close proximity to buildings, roads, or on bridge piers, chimneys, channel markers, or utility poles have accepted human activity, and recommendations may be modified in consultation with an MDIFW wildlife biologist. Most activities are acceptable in this zone outside of the critical nesting season except construction of major roads and buildings. If construction of a road or building appears warranted, an MDIFW wildlife biologist should be consulted prior to its beginning. Buildings and roads within the zone and adjacent areas should be out of sight from the nest and conform to a 100 foot or greater setback

from the shoreline. The integrity of the shoreline vegetation should be maintained by restricting cutting and retaining large snags along the shoreline protection zone.

Selective cutting within 660 feet of a nest is acceptable outside of the critical nesting period, but harvest should not remove more than 20% of the stand volume in any 10-year period. A special effort should be made to preserve snags and clumps of tall trees for alternate nest sites.

Incompatible year-round activities:

- Clear cutting, and
- Building permanent structures and major roads (see comments above).

Compatible activities during the critical nesting period:

- human activity, if minimized, and
- Farming or fishing (commercial or recreational) is possible if nesting ospreys are tolerant of these activities.

Compatible activities during the non-nesting period:

- Hunting, fishing, hiking, farming,
- Selective harvesting of forest stands, and
- Maintenance of existing roads or trails.

Colonial groupings of osprey nests (occupied nests separated by less than 1/2 mile) should be buffered collectively. The guidelines outlined above should be applied to each individual nest, and the colony boundaries should be delineated by a MDIFW wildlife biologist. Colonial nesting ospreys are rare in Maine and indicate the proximity of a unique, highly productive feeding area or a severe shortage of suitable nesting habitat.

Additional recommendations include:

1) A supply of mature trees and snags should be

maintained along the shoreline for potential nest sites. Tall white pines and broken-topped spruces are favored nest and perch trees for ospreys in Maine.

2) Maintaining the integrity of wooded shorelines greatly enhances osprey nesting and perching habitat. Minimum setbacks of 100 feet or greater for building or road construction along a wooded shoreline not only complies with shoreland zoning ordinances but lessens the influence of new construction on ospreys, eagles and other wildlife. Suggested shoreland zoning districts are those defined by the Maine Shoreland Zoning Act. Shoreline buffers greater than those provided for under Shoreline Zoning may be recommended based on other adjacent resource areas, such as wetlands (W3, W2) or Class A Marine Wildlife Habitats.

3) Community artificial nest platform programs have been successful for ospreys. Artificial platforms can be used to provide nest sites in areas that lack sufficient natural sites, replace insecure natural nests, relocate nests away from excessive disturbance, and substitute nests located on hazardous or conflicting man-made structures. The design and placement of nest platforms should be under the direction of a MDIFW wildlife biologist.

G. SHOREBIRD FEEDING AND ROOSTING AREAS

1. **Sensitivity.** Shorebirds are a closely related group of species that are represented in Maine by the sandpipers, plovers, turnstones, curlews, dowitchers, and phalaropes. The Maine coast is an important feeding and resting area for over 25 species of migratory shorebirds. Six species, including the endangered piping plover, breed along the coast, and one species, the purple sandpiper, is a winter resident.

   A large numbers of these birds depend on coastal habitats in Maine for feeding and resting during their long migration from the Arctic breeding grounds to South American wintering areas. During their brief stay in Maine, most shorebirds feed intensively on intertidal invertebrates and nearly double their weight in fat reserves. This fat is used as fuel for the nonstop 2,600 mile transoceanic flight. Although migratory shorebirds are observed briefly in Maine (from July to September), the coastal habitats they use are critical to the continued success of their annual migrations.

   Shorebird populations are still recovering from tremendous population declines incurred in the late 1800's and early 1900's resulting from market hunting. Several species, including the Eskimo curlew, golden plover, and whimbrel, are still rare today. However, the continued recovery of all shorebird species depends particularly on the preservation of fall migration areas (Maine and the Bay of Fundy region), wintering quarters (coastal South America) and spring migration stopovers (central U. S. and Canada).

2. **Methods.** Historic records and ground surveys were used to locate shorebird feeding and roosting areas. Presence of an average of 50 or more shorebirds during any season was needed to locate one of these areas.

3. **Recommendations.** The recommendations presented in this section are broad. They are an attempt to address the full range of possible situations that may arise when human activity influences shorebird feeding and roosting areas. Where there is doubt about the interpretation or application of these recommendations, the appropriate MDIFW regional wildlife biologist should be contacted for assistance.

The continued importance of the Maine coast to migrating shorebirds depends on the preservation of their feeding and roosting habitats. Commonly used feeding areas include mudflats, salt marshes, sand and gravel beaches, mussel bars, blueberry fields, and bogs. Major roosting habitats are gravel and sand beaches and bars, salt marshes, rocky ledges, fields, and pastures. Each species has preferred feeding and roosting habitats. The importance of a region to a particular species depends on the abundance of its preferred habitats in that region. In general, preservation of intertidal mud and sand flats, sand beaches and gravel bars would provide feeding and resting areas for a diversity of shorebird species.

Feeding Areas. Protection recommendations consist of applying the existing shoreland zoning districts (Maine Shoreland Zoning Act) to protect the most important shorebird feeding areas. Shoreline buffers greater than those provided for under shoreline zoning may be beneficial based on other adjacent resource areas, such as wetlands (W3, W2) or Class A Marine Wildlife Habitats [MWH(A)]. In addition, activities should be restricted that would substantially alter the integrity of the existing shoreline or influence the abundance or species composition of the intertidal invertebrate populations that the shorebirds utilize for food (e.g., dredging, filling, construction of piers, jetties, seawalls, discharge of human and industrial waste). Shorebirds may shift to other feeding areas if excessive alterations or destruction of intertidal habitats occur. Human activity should be discouraged during peak migration (July 10 to September 10). Activities that would diminish the intertidal invertebrate diversity or abundance should be prohibited year-round.

Compatible activities during the peak migration period:

- Light to moderate intensity clam or worm digging, commercial fishing (except dragging), and recreational activities.

Incompatible year-round activities:

- Overboard discharge of sewage or other environmental contaminants on or near mud or sand flats used by shorebirds, and

- Activities such as dredging or filling on feeding areas, or dragging within 1/2 mile of mean low tide of feeding areas that would cause deposition of sediment especially in Class A and B wildlife areas.

Most other activities are compatible with shorebird feeding areas outside of the migratory period, except dredging, filling, or dragging. Building and road construction, forestry and agricultural activities should be out of the line of sight from the feeding area and conform to at least a 75 foot or greater setback from the shoreline.

Roosting Areas. Roosting habitats are extremely limited and highly traditional. The physical characteristics of a roost site offer shorebirds protection from adverse weather and predators, in addition to a place to rest at high tide. Good roost sites are limited and shorebirds will travel for miles to a well-protected roost at high tide. Many roosting areas have been used by shorebirds since colonial times.

The natural habitat within shorebird roosting area and adjacent shoreland within 250' of each roosting area should not be modified unless such actions are deemed essential to site preservation after consulting with a MDIFW wildlife biologist.

Incompatible year-round activities within 250-foot protection zone:

- Land clearing without consultation with a MDIFW wildlife biologist, and

- Road, trail, or new building construction.

Incompatible activities within 250-foot protection zone during the migratory period:

- Human activities (Posting of the area may be warranted).

Compatible activities during the non-migratory period:

- Hunting, fishing, hiking, commercial fishing, and farming, and

- Selective thinning or maintenance of timber stands within the 250 foot zone.

H. SEAL HAUL-OUTS

A. Sensitivity. Maine has the largest population of harbor seals of any Atlantic state, and supports the only significant breeding population in the eastern United States. Gray seals, which are much larger than the harbor seal, are uncommon but regular visitors to Maine's coast, and usually found around remote offshore ledges and islands. The gray seal does not breed in Maine. Although pups are occasionally seen, they have probably dispersed from their birthplaces around Sable Island or the Gulf of St. Lawrence in eastern Canada.

Populations of both species were severely depleted by overharvesting through the middle part of this century, but have increased dramatically during the past twenty years in response to protective legislation. Maine's population of harbor seals has more than doubled since 1973, to an estimated 13,000 plus animals in 1986 (Gilbert and Stein, 1981; Wynne, personal communication).

All seals use half-tide ledges and island beaches for resting and whelping, and these sites are necessary for the survival of both adults and young. Whelping or "pupping" sites are used from year to year by the same breeding females, many of which were probably born on these ledges (Cowperthwaite, unpubl. data). These specific sites are important because of their proximity to high quality feeding areas, combined with a lack of human disturbance.

The attributes of food availability and lack of disturbance also determine selection of haul-out ledges by nonbreeding and post-breeding seals (Ronald, Selley and Heally, 1982). Adult seals undergo a complete pelage molt in mid to late summer. This is a physiological stressful period demanding additional rest to sustain the increased metabolic activity associated with skin and fur replacement.

2. Methods. Seal haul-outs were located in conjunction with coastal aerial surveys in 1981 or 1982 and ground censuses of seabird nesting islands. Seal haul-outs observed with at least 5 or more adults or pups were mapped.

3. Recommendations. The recommendations presented in this section are broad. They are an attempt to address the full range of possible

situations that may arise when human activity influences seal haul-outs. Where there is doubt about the interpretation or the application of these recommendations, the appropriate MDIFW regional wildlife biologist be contacted for assistance.

Human disturbance and contamination from oil spills are the primary threats to seals at haul-outs. Curious boaters approaching too close to hauled-out seals, or actually landing on the islands and ledges, will force seals to flee into the water. Young pups can easily become permanently separated from their mothers, resulting in death by starvation. Pups are born without a thick layer of blubber, and must rely on solar energy for thermoregulation during the first few weeks of life. Until pups have acquired a layer of blubber, long periods of immersion in Maine's cold coastal waters can cause death from hypothermia. Curious pups are also slow to avoid boats, and are therefore vulnerable to injuries from boat propellers.

The hazards to marine mammals from oil spills are well-documented. Ingestion of petroleum products, and oiling of fur can cause death. Spills in proximity to major pupping areas could be especially disastrous, affecting hundreds of seals.

Recommendations for the protection of seal haul-outs focus on minimizing both exposure to human disturbance and the potential for involvement with major oil spills.

Human activity should be discouraged during the critical period of April 1 - August 15. Informational signs should be posted at major boat launching areas and marinas explaining the problems of human disturbance to seals, and requesting that boaters avoid harassment by remaining at least 200 feet from all seals, whether hauled-out or in the water. Siting of major marinas and oil tanker shipping lanes should avoid important haul-out areas.

I. LEAST TERN AND PIPING PLOVER NEST SITES

1. **Sensitivity.** The least tern and piping plover both nest along the Atlantic coast on sandy, coastal beaches. Both are rare and their populations have been declining in recent years. The piping plover is federally listed as Threatened throughout its Atlantic coast range. In Maine the piping plover and least tern are listed as Endangered.

   There currently are fewer than 100 pairs of least terns nesting in Maine and fewer than 15 pairs of piping plovers. There are only about 12 beaches in Maine where suitable nest sites for these birds exist. At all of the nesting sites, birds are confronted with habitat loss, disturbance from people and their pets, and predation from wild animals and pets. To prevent the loss of these two species from Maine, undisturbed nest sites must be available.

2. **Methods.** Historic potential and known active nesting sites are annually surveyed by Maine Audubon Society and by MDIFW. These records form the basis of all mapped sites.

3. **Recommendations.** Specific recommendations for these species are being developed by the U.S. Fish and Wildlife Service but are not available at this time. However, nesting beaches should not be developed and human disturbance and pets should not be allowed in the nesting areas. MDIFW wildlife biologists should be contacted for specific recommendations on a site-by-site basis.

J. OTHER SPECIAL WILDLIFE HABITATS

1. **Sensitivity.** A number of other special wildlife habitats exist for which there are currently no broad recommendations due to their uniqueness. An example is the grasshopper sparrow nest site in Brunswick. These unique habitats are grouped within this "OTHER" category for the purposes of this report. They should be viewed as extremely sensitive environments.

2. **Methods.** Confirmed occurrences of endangered or threatened wildlife species utilizing a specific location to fulfill all or a portion of their seasonal or annual needs for food, cover and reproduction were mapped in this category. A complete list of endangered and threatened wildlife species is found in Appendix 7.

3. **Recommendations.** MDIFW wildlife biologists should be contacted to assist in developing specific management plans.

SUPRATIDAL ENVIRONMENTS

Environments just above the highest high water datum, but under the partial influence of marine processes and forces.

Sd	Dunes and Vegetated Beach Ridges	Unconsolidated sand or gravel deposits capping beach environments. Dunes are subject to storm waves and winds, while gravel beach ridges are subject only to storm wash. Each may be vegetated with salt-tolerant vegetation.
Sw	Fresh-Brackish Water	Ponded water behind beach ridges, man-made constrictions on former tidal embayments, or on marsh surfaces transitional between upland and salt marsh environments. Salinity of the water is less than 5 parts per thousand (ppt).
Sm	Fresh-Brackish Marsh	Water-saturated, organic-rich sediments characterized by broad-leafed vegetation tolerant of constant submergence in fresh water. Salinity of interstitial water is less than 5 ppt.
Sx	Man-Made Land	Structures or fill emplaced by man in the nearshore environment.
Sk	Landslide Excavation and Deposits	Natural excavation into shoreline upland slopes created by large-scale slumping or sliding of bank material and the resulting deposits at the base of the slopes.
Se	Eolian Flat	Partially vegetated sand flats adjacent to dune fields. Subject to generally northwest winds and occasional storm flooding.
Sf	Washover Flat	Sand deposits covering salt marshes behind inlet mouths which originate from storm washover or inlet delta deposits on salt marshes. Subject to storm washover and spring tide flooding.
Sr	Fluvial Marsh	Vegetated river floodplain and bank environments. Characterized by freshwater pond vegetation such as pond lilies, reeds, and wild rice. Subject to daily tidal flooding as well as inundation during high river discharge periods.

INTERTIDAL ENVIRONMENTS

APPENDIX C:

CRITICAL NATURAL AREAS

June 22, 1977

Register of Critical Areas

The State Planning Office is charged with administering the Critical Areas Act. For further information, please contact the State Planning Office, Critical Areas Program, 184 State Street, Augusta, Maine, 04333, Telephone (207) 289-3155.

1. Name

Appledore Island Heronry –

2. Critical Area Number 64 = NATURAL AREA #9

3. Location

A. York County
B. Kittery
C. Minor Civil Division Code Number - 31130 T
D. Coastal Islands Registry Number - 81-191
E. Latitude 42° 59' 24" Longitude 70° 37' 00"
F. U.S.G.S. Quadrangle: Isles of Shoals, Maine-New Hampshire 7.5' 1956

4. Categories of Critical Areas Into Which the Area Falls

A. Areas of significance to the natural sciences
B. Ecologically sensitive areas
C. Important habitat

5. Owner's Name and Address

The Star Island Corporation
110 Arlington Street
Boston, Massachusetts 02116

The Shoals Marine Laboratory
P.O. Box 88
Portsmouth, New Hampshire 03801
(has a 50-year lease for the use of Appledore Island) Permanent address on back.

6. Boundaries and Size of the Area

The critical area is on the northern half of Appledore Island. It is bounded on the north, east, and west by a line 60.96 meters (200 feet) inland from the high water mark and on the south by the Laighton Cemetary. The critical area includes 7.5 hectares.

7. A Description of the Area Including a Listing of its Unusual Qualities and the Reason(s) for its Inclusion on the Register.

A large multi-specied heronry is located on Appledore Island, which lies twelve km southeast of Kittery, within 1/2 km of the New Hampshire border. The island covers thirty-six hectares and rises to an elevation of over sixty feet. The northern end of the island, where the heronry is located, is heavily covered with a dense growth of shrubby trees of common winterberry holly, black chokeberry, shadbush and chokecherry. On the southern end of the island are a number of buildings used by the Shoals Marine Laboratory, which conducts a summer educational program on the island.

The Appledore Island Heronry supports a large number of breeding black-crowned night herons (Nycticorax nycticorax), snowy egrets (Egretta thula), and glossy ibis (Plegadis falcinellus).

It is one of six multi-specied heronries in Maine. The snowy egret and glossy ibis are relatively new breeding species in Maine and are at the northern extreme of their breeding range in southern Maine. The black-crowned night heron has suffered a dramatic decline within the past forty years and now breeds on only eight of Maine's coastal islands. The Appledore Island Heron is included in the register because of its importance as a breeding site for three unusual species of waders in Maine. For further information, see the planning report, Wading Birds in Maine, by Harry R. Tyler, Jr.

8. A Brief Statement Concerning the Type of Management Recommended for the Area Including Uses Which Would be Compatible With the Values Represented by the Area

It is suggested that the landowner or a designated representative of the landowner may, at his/her option, institute any or all of the following management suggestions:

A. Wading bird colonies should be maintained in a natural condition suitable as bird nesting habitat.

B. Wading bird colonies should not be disturbed by human visitation or activities during the breeding season. Visitation during the early phases of the breeding period in April and May should be kept to a minimum.

C. Trees in which nests are located and trees in the vicinity of the heronry should not be cut down.

D. Wading bird colonies should be monitored annually to check on the condition of the nesting area and also count the number of active nests. Colonial birds inventory forms should be completed and sent to: Director, Colonial Bird Register, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14853.

E. Notify the local conservation commission of the critical area when appropriate.

F. The above management suggestions should be revised as more data becomes available about Maine wading bird colonies.

9. Programs Which Directly Affect or are Particularly Relevant to the Use and Management of the Area

Shoreland Zoning - The Town of Kittery has zoned the area two hundred feet from mean high tide as a resource protection district.

Shoals Marine Laboratory prohibits persons from entering the heronry during the breeding season, unless accompanied by or under the supervision of Shoals Marine Laboratory's ornithologist.

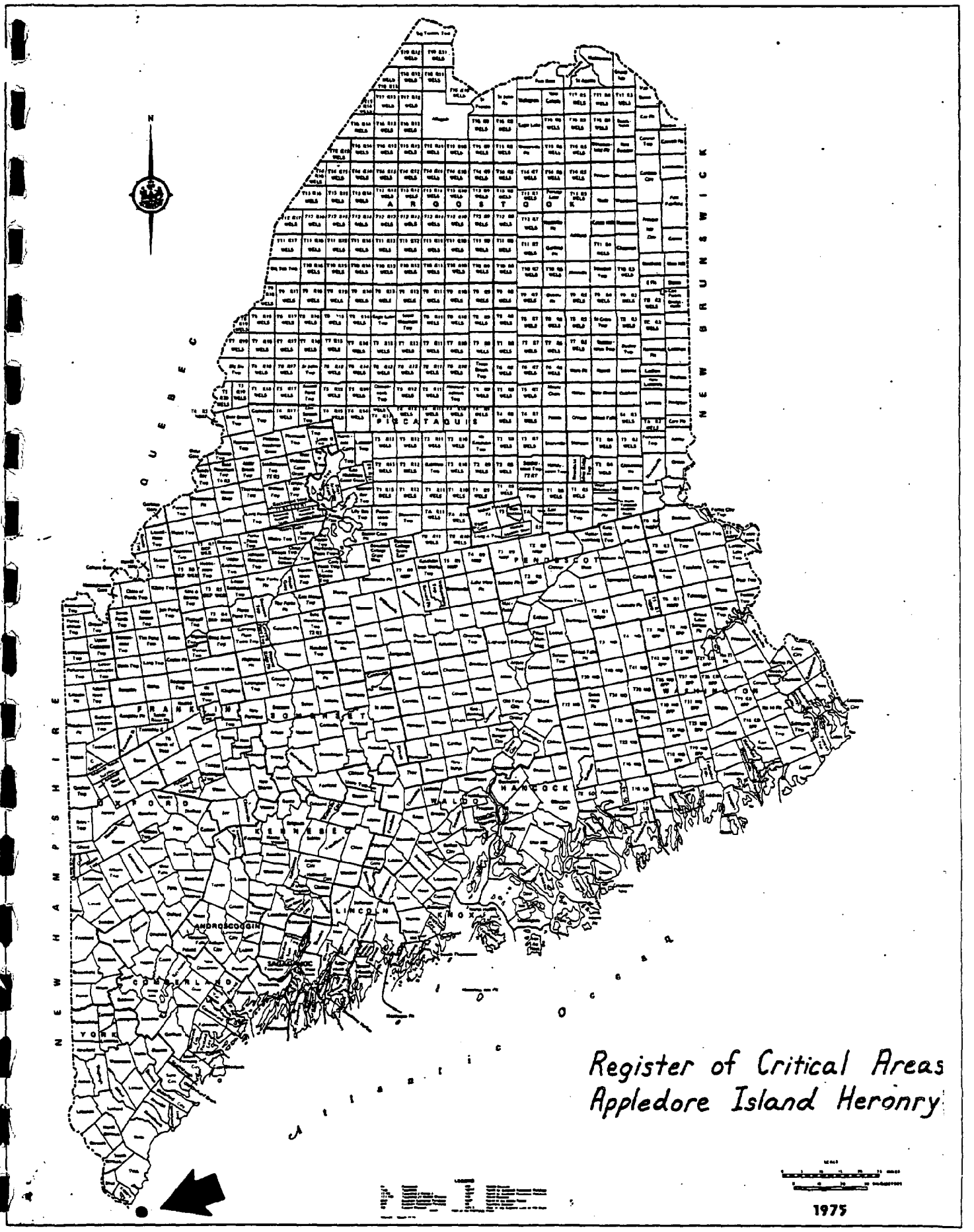
Appledore Island is listed on the National Registry of Historic Places. Before the American Revolution, as many as six hundred people occupied the island, and remnants of their activities may be traced throughout the island. Today, the Isles of Shoals are particularly notable for the significance of their land water interfaces. The entire archipelago is utilized extensively for intensive studies in marine biology. For further information, see the National Register of Historic Places Inventory - Nomination Form.

10. A Brief Statement Concerning Publicity About the Area

Publicity about Appledore Island Heronry should be minimized so that visitors are not attracted to the nesting area during the nesting season. Laboratory publications promoting Shoals Marine Laboratory educational programs are an exception to this policy.

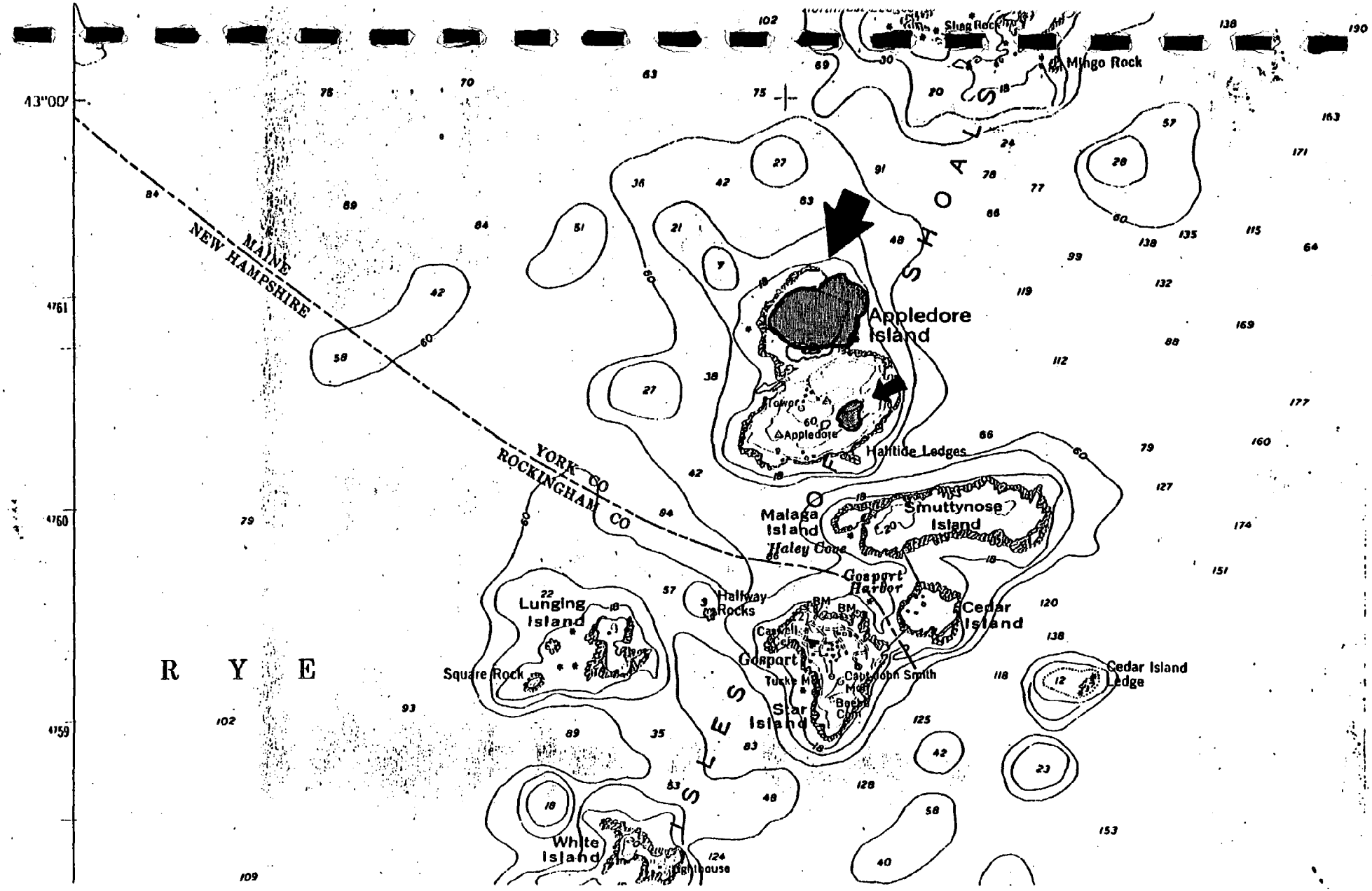
11. Date Registration Becomes Effective

August 5, 1977



Register of Critical Areas
Appledore Island Heronry

1975



SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

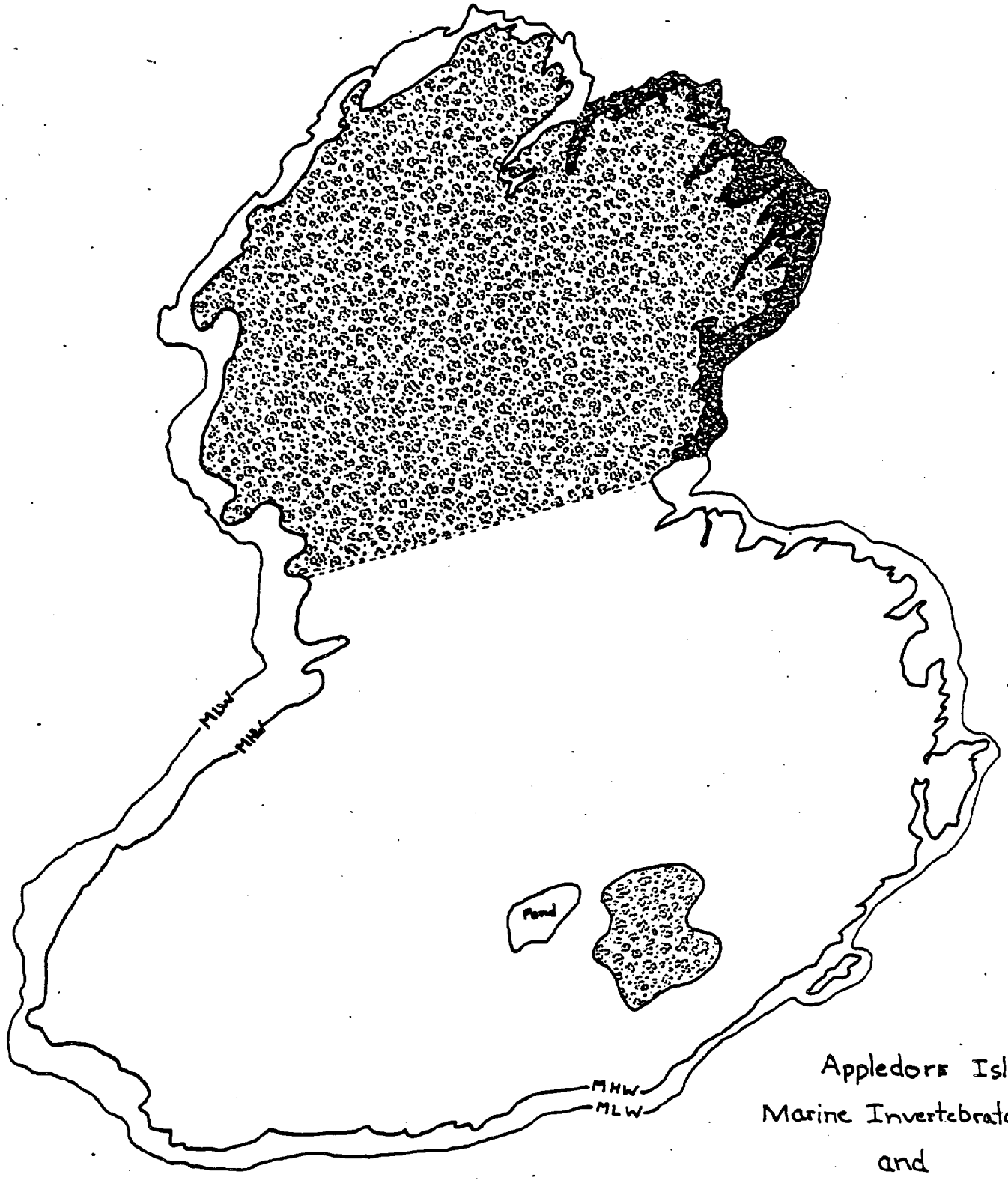
ISLES OF SHOALS, ME.—N. H.

N4255—W7032/7.5

1956

AMS 6870 II SE-SERIES V811

Register of Critical Areas
Appledor Island Heronry



Appledore Island
Marine Invertebrate Area
and
Seabird Nesting Area

Seabird Nesting Area

Marine Invertebrate Area

0 100 200 300
Meters

REGISTER OF MAINE CRITICAL AREAS

The State Planning Office is charged with administering the Critical Areas Act. For further information, please contact the State Planning Office, Critical Areas Program, 184 State Street, Augusta, Maine, 04333, Telephone 289-3261.

1. Name: Kittery Bitternut Hickory Station

2. Critical Area Number 605

3. Location:

   A. York County
   B. Town of Kittery
   C Minor Civil Division Code Number - 31130
   D. Latitude: 43° 05' 54" Longitude: 70° 45' 20"
   E. U.S.G.S. Quadrangle: Portsmouth, NH-Maine 7.5' (1973)

4. Owners' Names and Addresses:

   Enid M. MacGray, Treasurer
   Braecopse Realty Trust
   20 Holmes Street
   Needham, MA 02192
   (Lot 6-1)

   Leo W. and Kathryn L. Myers
   51 Old Dennett Road
   Kittery, Maine 03904
   (Lot 6-2)

   Janet M. MacGray, Trustee
   Braecopse Realty Trust
   36 Chester Street
   Chester, NH 03036
   (Lot 6-1)

5. Boundaries and Size of the Area:

   The proposed Critical Area covers approximately 5.7 acres and includes all of Lot 6-1, 4.6 acres, and a portion of Lot 6-2, 1.1 acre. The boundaries and location of the proposed critical area are shown on the attached map.

6. A Description of the Area Including a Listing of its Unusual Qualities and the Reason(s) for its Inclusion on the Register:

   Eight to twelve mature Bitternut Hickory (*Carya cordiformis*) trees are scattered throughout this woodlot. The woodlot appears not to have been cut for quite some time as evidenced by the presence of many large white oaks (*Quercus alba*), and many dead and down trees. Red Oak (*Q. rubrum*), white pine (*Pinus strobus*), beech (*Fagus grandifolia*), and black cherry (*Prunus serotina*) also occur in the canopy. In the understory, partridgeberry (*Mitchella repens*), Christmas fern (*Polystichum acrostichoides*), junipers (*Juniperus* sp.), and highbush blueberry (*Vaccinium corymbosum*) are present.

The hickories range in size from tiny seedlings, which occur in abundance in the center of the lot, to large trees of about 15 inches d.b.h. (diameter at breast height). Bitternut hickory is recognized by its large pinnately compound leaves, sulfur-yellow buds, and fruit husks with winglike ribs.

The Kittery Bitternut Hickory Station was discovered in June 1986 by Charles Cormier. Previously unknown from Maine, this hickory also occurs on the opposite side of the Piscataquis River in Portsmouth, New Hampshire.

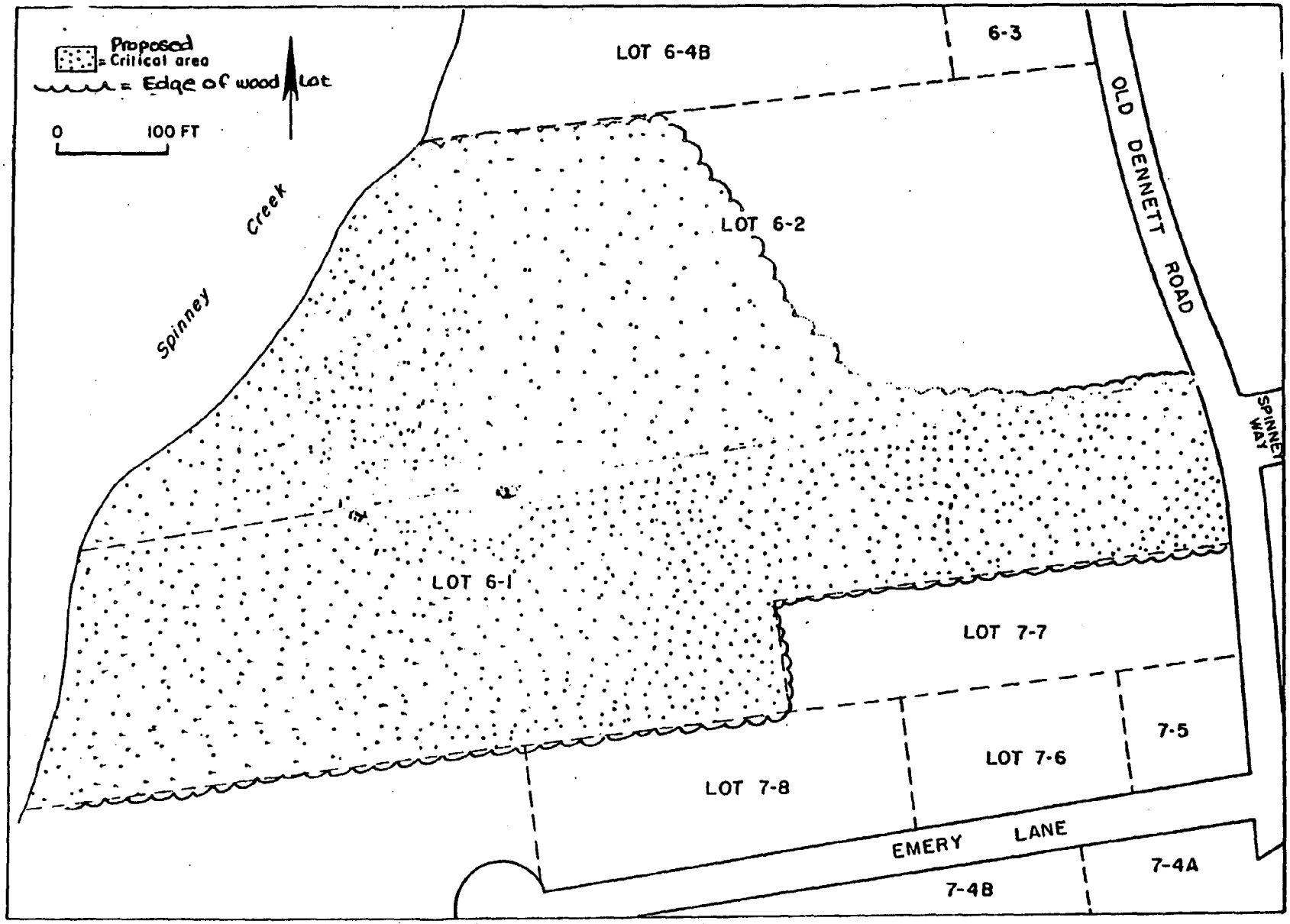
Bitternut hickory is listed as "Endangered" on the official list of Maine's Endangered and Threatened Plants because it is only known from one location in the State.

7. Action Taken by the Critical Areas Advisory Board:

On July 29, 1988 the Board voted to include the Kittery Bitternut Hickory Station on the Register of Critical Areas.

Prepared by Patricia DeHond January 19, 1988

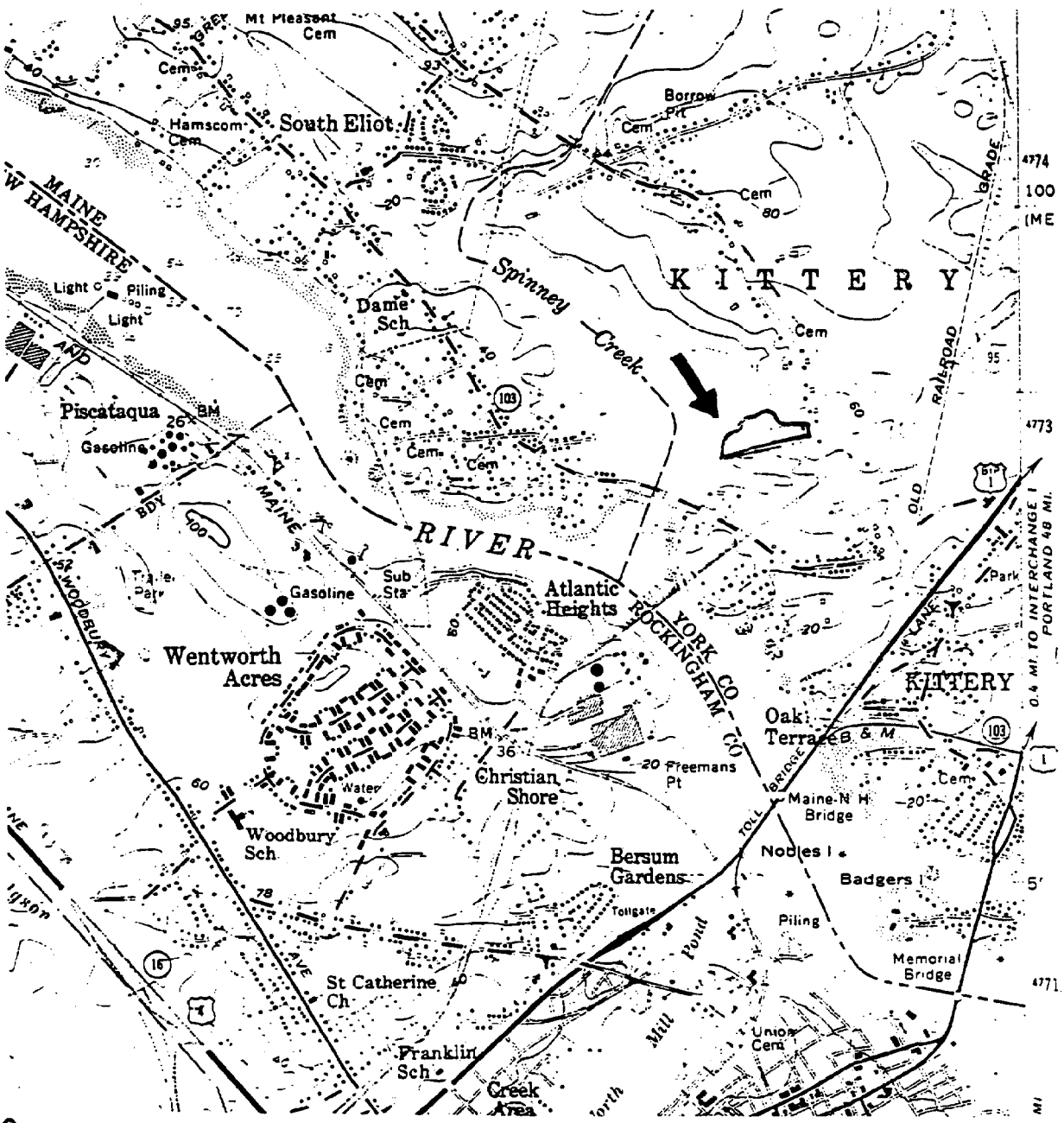
5a/11

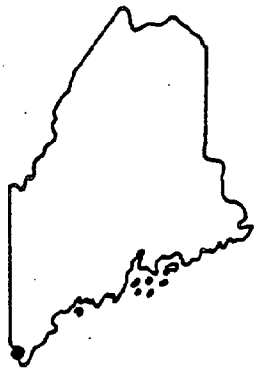


Kittery Bitternut Hickory Station
Kittery York County
MAINE

MAINE REGISTER OF CRITICAL AREAS

Kittery Bitternut Hickory Station





Location Map

SCALE

1:24,000

0 .5 1

miles

Contour Interval Feet

County- York

USGS 7.5' Quadrangle-

Portsmouth, N.H.- Maine (195

Date July 1, 1978

Register of Critical Areas

The State Planning Office is charged with administering the Critical Areas Act. For further information, please contact the State Planning Office, Critical Areas Program, 189 State Street, Augusta, Maine, 04333, Telephone (207) 289-3155.

1. Name Explosion Breccia, Gerrish Island

2. Critical Area Number - 185 = Natural Area #1980; 2242

3. Location

   A. York County

   B. Kittery

   C. Minor Civil Division Code Number - 31130

   D. U.S.G.S. Quadrangle - York 15' Kittery 7.5' Maine 1956

   E. Latitude 43° 04' 06" Longitude 70° 40' 38"

4. Owner's Name and Address

Warren Delano Jr.
230 East 79th Street
New York, NY 10021

Also acting as Trustee of Sara Delano Estate
P.O. Box 218
Kittery, ME 03905

Mr. Lyman Delano
[illegible]

5. Boundaries and Size of the Area

The critical area runs along the shoreline of Gerrish Island, bounded on two sides by the mean low water line and the vegetation line. Bounded on the south by the southern tip of Seward's Point, the area includes a 300 meter (1,000 feet) stretch of shoreline running northeastward (see attached sketch map). The area includes approximately 1.2 hectares (3.0 acres).

6. A Description of the Area Including a Listing of its Unusual Qualities and the Reason(s) for its inclusion on the Register

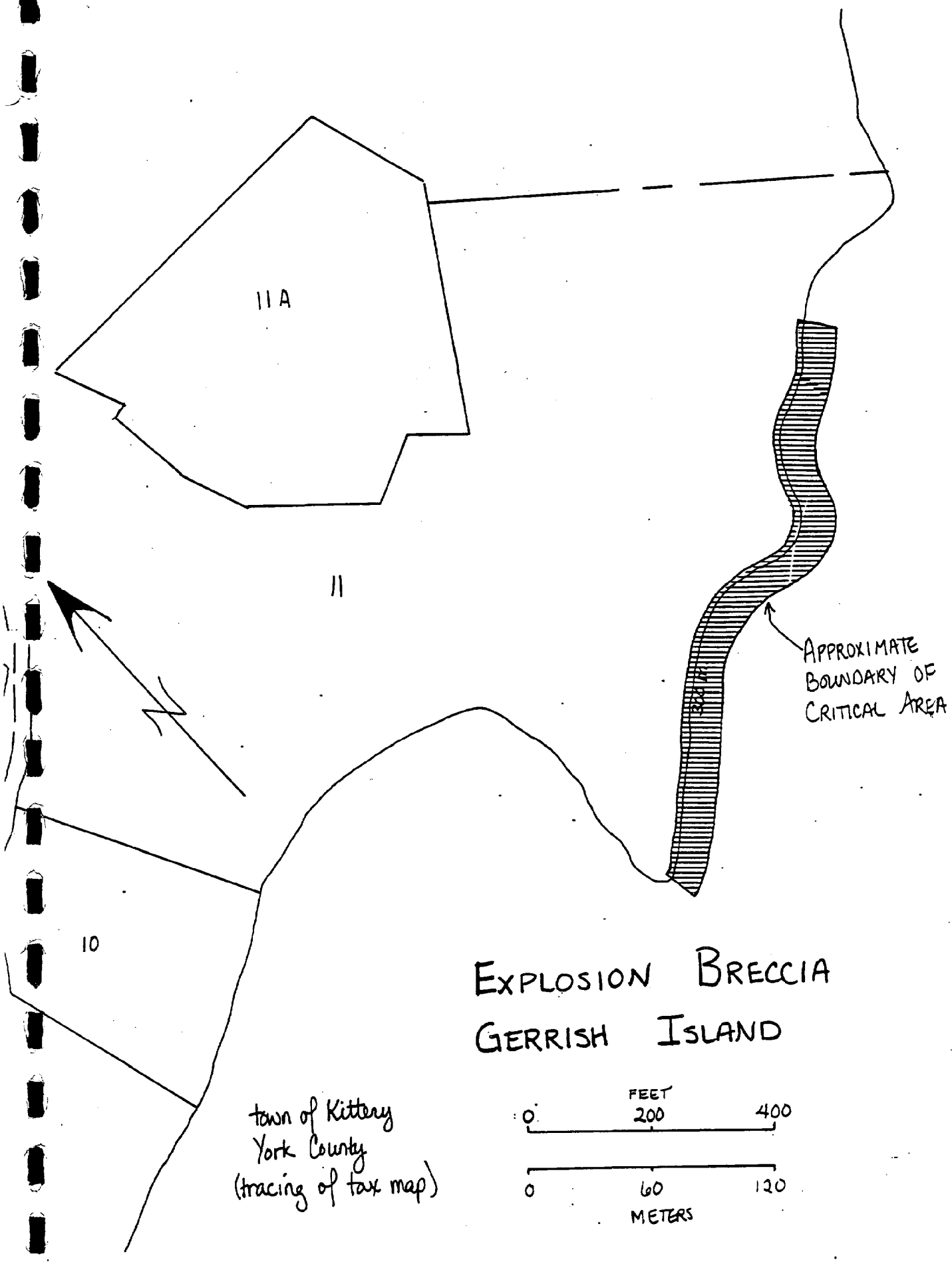
The shoreline exposure of beccia on Gerrish Island is important because it records the sequence of events of the breccia formation. The breccia includes fragments of felsic and basic metamorphosed volcanic rocks and basaltic dikes all jumbled together with random orientation of foliation and bedding. Blocks of breccia average about 25 cm. in diameter and occur in a closely packed arrangement with essentially no fine-grained matrix. In addition a later set of basalt dikes, one 25 meters in width, cut the breccia and are believed to correlate with the Cape Neddick gabbro and other similar, geologically young, intrusives in the region.

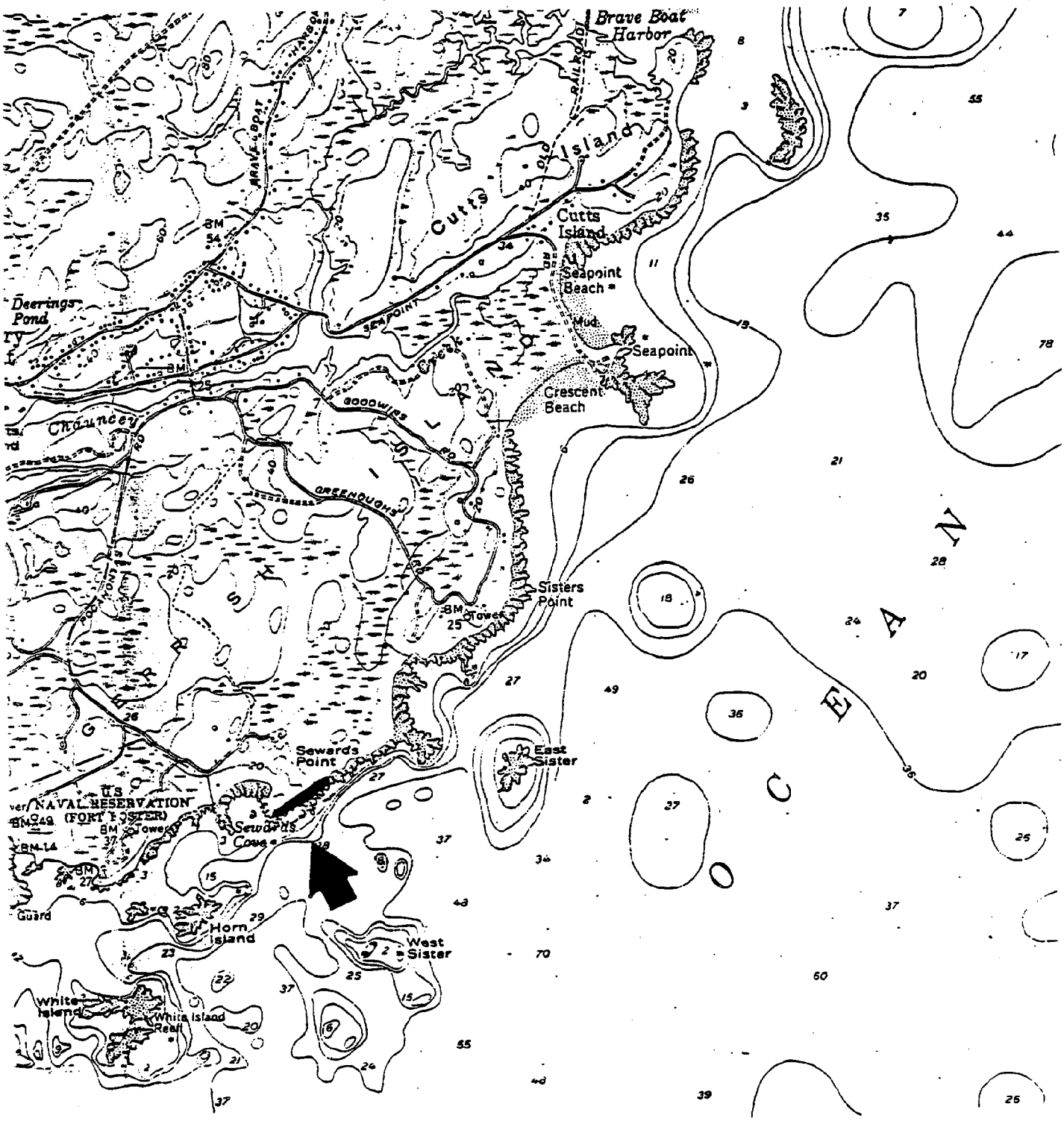
This site is of educational and scientific value and merits preservation for further study.

For more information see the planning report, Significant Bedrock Outcrops in Southern York County, by Arthur M. Hussey II.

7. Date Registration Becomes Effective

October 5, 1978

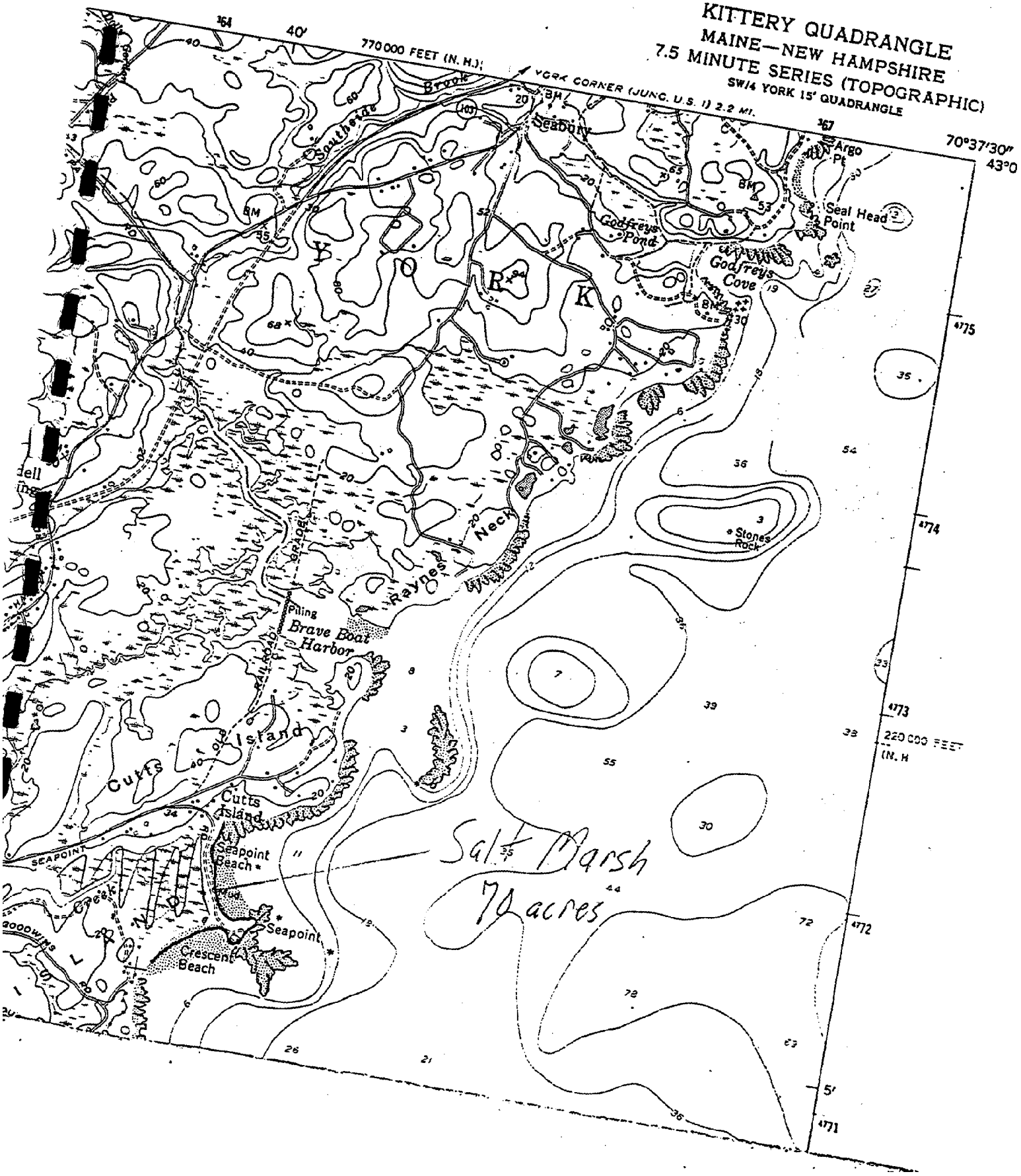

11A
11
10
13
APPROXIMATE BOUNDARY OF CRITICAL AREA
EXPLOSION BRECCIA
GERRISH ISLAND
town of Kittery
York County
(tracing of tax map)
FEET
0
200
400
0
60
120
METERS



KITTERY, ME.—N.H.
SW/4 YORK 15' QUADRANGLE
N4300—W7037.5/7.5

1956

REGISTER OF CRITICAL AREAS
EXPLOSION BRECCIA,
GERRISH ISLAND


KITTERY QUADRANGLE
MAINE—NEW HAMPSHIRE
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 YORK 15' QUADRANGLE
770 000 FEET (N. H.)
YORK CORNER (JUNC. U.S. 1) 2.2 MI.
70°37'30"
43°0
Southside Brook
Seabury
Argo Pt
Seal Head Point
Godfreys Pond
Godfreys Cove
Y O R K
Stones Rock
Raynes Neck
Piling
Brave Boat Harbor
Cutts Island
Cutts Island
Seapoint Beach
Seapoint
Crescent Beach
SEAPOINT
GOODWINS
220 000 FEET (N. H
Salt Marsh
70 acres

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 609 NAME SEA POINT SALTMARSH
LATITUDE 43-05-00 LONGITUDE 70-40-30

ESTIMATED ACREAGE: 67.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
EXTENSIVE SALTMARSH ROCKY BEACH AND INTERTIDAL TREE STUMPS. APPROXI-
MATELY 2000 FEET OF OCEAN FRONTAGE. LAND PRIVATELY OWNED BUT MANAGED
BY THE TOWN TO PROVIDE FOR SWIMMING AND PICNICING.

VERIFICATION: BY CORRESPONDENCE/TELEPHONE-SPO

ESTIMATE OF SIGNIFIGANCE: LOCAL
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO;DR ARTHUR HUSSEY
CRITICAL AREA: NO

EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 COMPLETED: 76-78 UPDATE SPO NAT AREAS

FIELD CHECKING: NO

CONTACT:
NAME: DR ARTHUR HUSSEY ADDRESS: GEO DEPT BOWDOIN COL
TOWN: BRUNSWICK STATE: ME ZIP CODE: 04011 PHONE: 725-8731

MAJOR TYPE: BOTANY
GENERAL TYPE: SALTMARSH

DATE OF ENTRY: 1/28/76

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 2017 NAME KITTERY POINT
LATITUDE 43-04-48 LONGITUDE 70-41-00

ESTIMATED ACREAGE: 5.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
2000 TO 3000 YEAR OLD FOSSIL TREE STUMPS FOUND IN THE INTERTIDAL AREA.

VERIFICATION: BY CORRESPONDENCE/TELEPHONE-SPO

ESTIMATE OF SIGNIFIGANCE: LOCAL
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO:DR ARTHUR HUSSEY
CRITICAL AREA: NO

EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 INCOMPLETED: 76-78 UPDATE SPO NAT AREAS

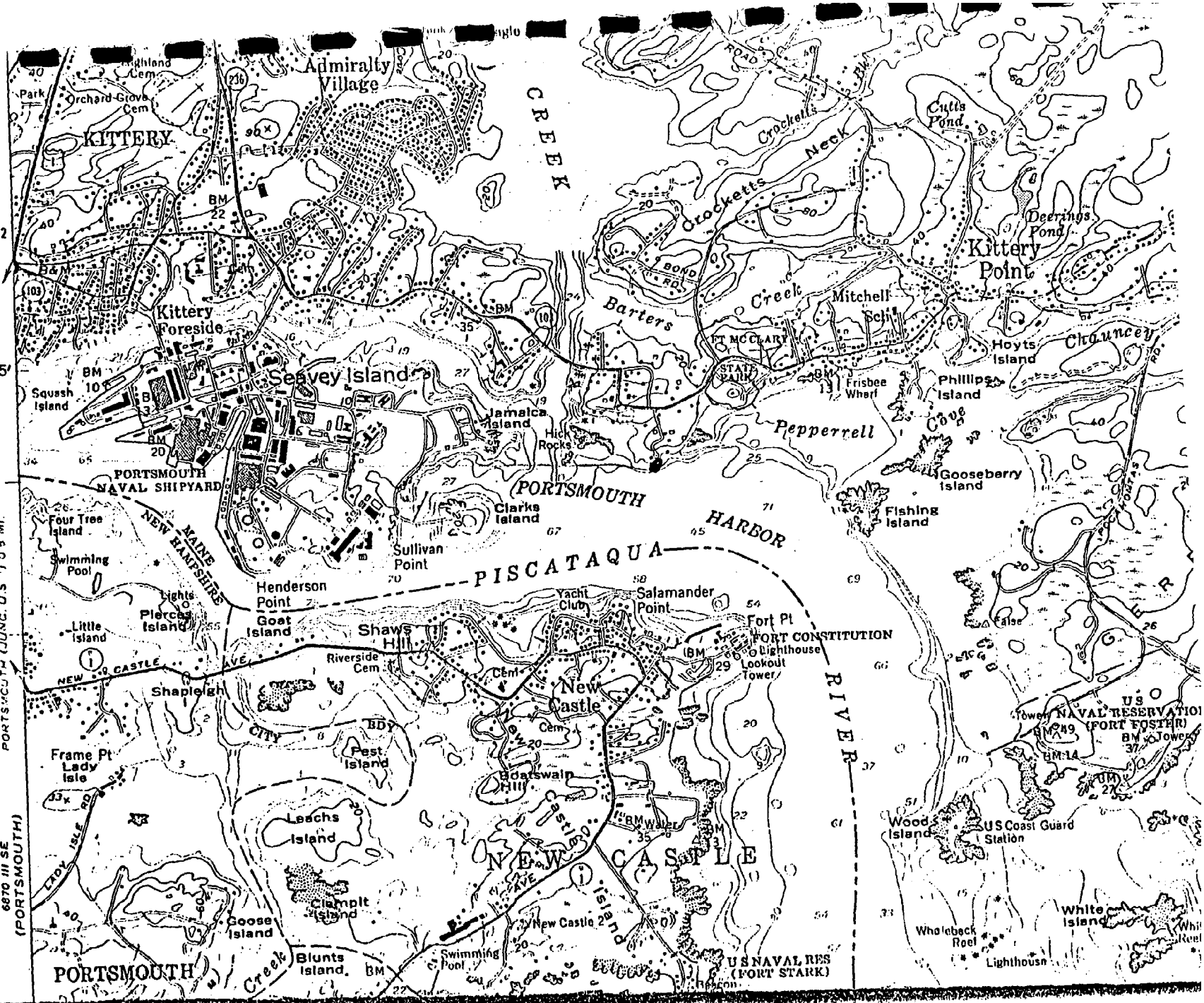
FIELD CHECKING: NO

CONTACT:
NAME: DR ARTHUR HUSSEY ADDRESS: GEO DEPT BOWDOIN COL
TOWN: BRUNSWICK STATE: ME ZIP CODE: 04011 PHONE: 725-8731

MAJOR TYPE: GEOLOGY
GENERAL TYPE: FOSSILS

DATE OF ENTRY: 1/27/76

2 million year old fossils



NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 2389 NAME APPLEDORE ISLAND
LATITUDE 42-59-20 LONGITUDE 70-36-48
COASTAL ISLAND # 31191
ESTIMATED ACREAGE: 90.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
APPLEDORE ISLAND IS ONE OF EIGHTEEN SIGNIFICANT HIGH DIVERSITY MARINE INVERTEBRATE SITES ON THE MAINE COAST. THE SHOALS MARINE LAB OF CORNELL UNIVERSITY CONDUCTS A SUMMER PROGRAM IN MARINE SCIENCES HERE.

VERIFICATION: BY FIELD CHECKING-SPO

ESTIMATE OF SIGNIFIGANCE: NATIONAL
DATA SOURCES: PLANNING REPORTS SUBMITTED TO THE CRITICAL AREAS PROG

EXTENT OF INFORMATION AND LOCATION:
***

FIELD CHECKING: YES
DATE: 0/ /77 BY WHOM: LEE DOGGETT ADDRESS: BIGELOW LABORATORY
TOWN: WEST BOOTHBAY HARBOR STATE: ME ZIP CODE: 04575 PHONE: 633-2173
LOCATION OF INFORMATION: STATE PLANNING OFFICE

CONTACT:
NAME: CRITICAL AREAS PROG ADDRESS: STATE PLANNING OFC
TOWN: AUGUSTA STATE: ME ZIP CODE: 04333 PHONE: 289-3154

MAJOR TYPE: ZOOLOGY
GENERAL TYPE: MARINE INVERTEBRATES

DATE OF ENTRY: 12/ 7/79

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 1993 NAME SPINNEY CREEK
LATITUDE 43-06-24 LONGITUDE 70-46-24

ESTIMATED ACREAGE: 60.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
ESTUARINE AREA USED FOR EXPERIMENTAL OYSTER SPAWNING BY DEPT OF MARINE RESOURCES. THERE ARE A FEW NATURAL AMERICAN OYSTERS.

VERIFICATION: BY CORRESPONDENCE/TELEPHONE-SPO

ESTIMATE OF SIGNIFIGANCE: LOCAL
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO;BRAD STERL REGIONAL BIOLOGIST MARINE RESOURCES
CRITICAL AREA: NO

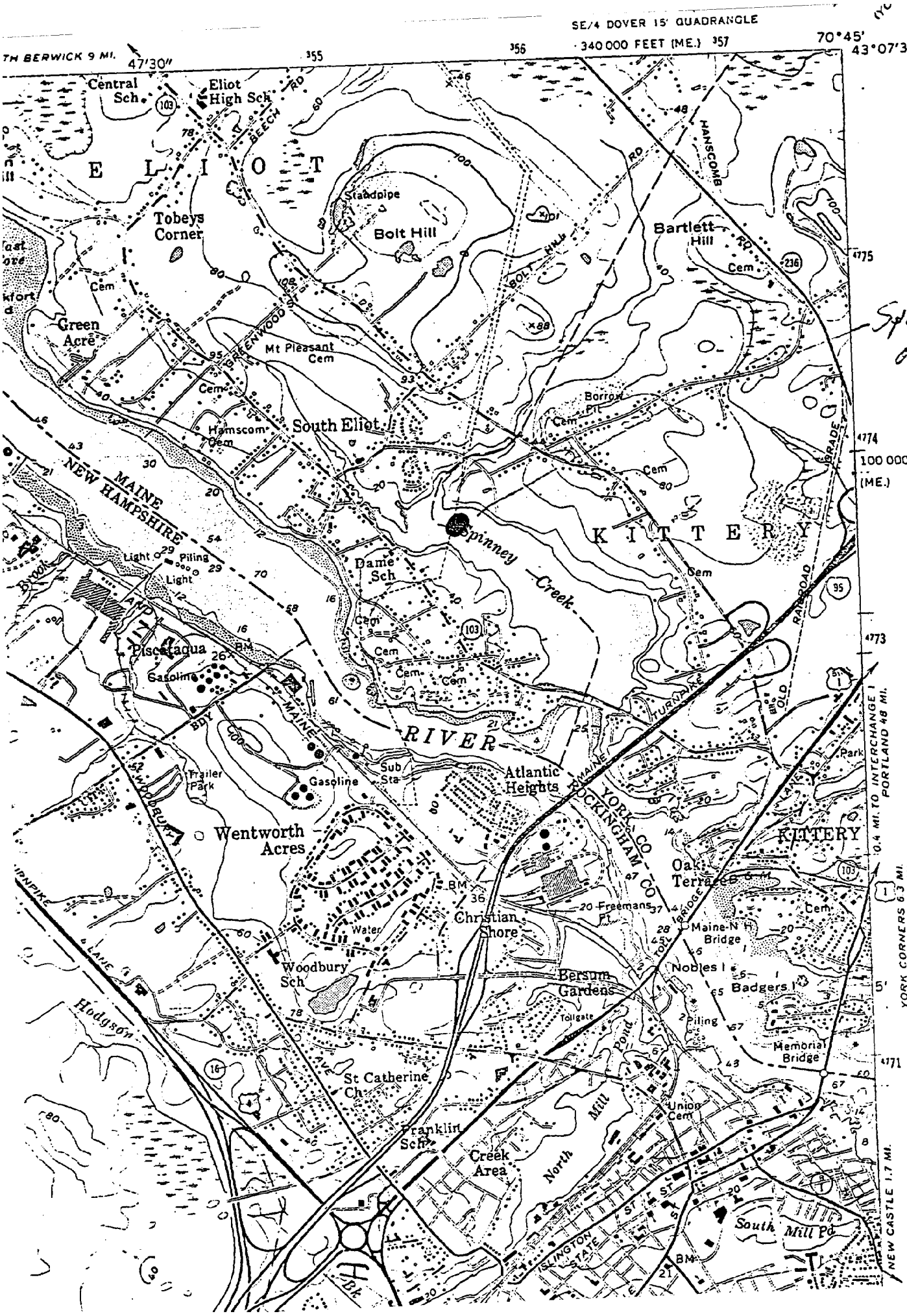
EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 INCOMPLETED: 76-78 UPDATE SPO NAT AREAS

FIELD CHECKING: NO

CONTACT:
NAME: BRAD STERL ADDRESS: BOX 12 DIXON RD
TOWN: OGUNQUIT STATE: ME ZIP CODE: 03907 PHONE: 646-3322

MAJOR TYPE: ZOOLOGY
GENERAL TYPE: MARINE INVERTEBRATES

DATE OF ENTRY: 1/26/76


SE/4 DOVER 15' QUADRANGLE
340 000 FEET (ME.)
70°45'
43°07'30"
47'30"
TH BERWICK 9 MI.
Central Sch
Eliot High Sch
BEECH RD
E L I O T
Tobeys Corner
Standpipe
Bolt Hill
Bartlett Hill
HANSCOMB RD
Cem
Green Acre
GREENWOOD ST
Mt Pleasant Cem
Hamscom Cem
South Eliot
Borrow Pit
100 000 FEET (ME.)
MAINE
NEW HAMPSHIRE
Light
Piling
Spinney Creek
K I T T E R Y
Dame Sch
Piscataqua
Gasoline
BDY
MAINE
RIVER
Sub Sta
Atlantic Heights
Trailer Park
Wentworth Acres
YORK CO
ROCKINGHAM CO
MAINE TURNPIKE
OLD RAILROAD GRADE
KITTERY
Oak Terrace
Freemans Pt
Christian Shore
Water
Woodbury Sch
Bersum Gardens
Tollgate
Maine-N H Bridge
Nobles I
Badgers I
Piling
Memorial Bridge
Hodgson
St Catherine Ch
Franklin Sch
Creek Area
North Mill Pond
Union Cem
South Mill Pd
ISLINGTON STATE
0.4 MI. TO INTERCHANGE 1 PORTLAND 48 MI.
YORK CORNERS 6.3 MI. PORTLAND 50 MI.
NEW CASTLE 1.7 MI.
Spawn oyste

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 60 NAME BRAVE BOAT HARBOR
LATITUDE 43-06-00 LONGITUDE 70-39-50

ESTIMATED ACREAGE: 600.0
OWNERSHIP: FEDERAL

BRIEF DESCRIPTION:
FINE LARGE SALTMARSH WITH LITTLE DEVELOPMENT THAT IS VERY SHALLOW MAK-
ING ACCESS DIFFICULT. ONLY UNPOLLUTED CLAM FLATS IN AREA BUT GREEN
CRAB HAS EMERGED AND IS DETRIMENTAL TO CLAMS. SNOWY EGRETS CORMORANTS.

VERIFICATION: BY CORRESPONDENCE/TELEPHONE-SPO

ESTIMATE OF SIGNIFIGANCE: REGIONAL
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO;JOHN GREGG
CRITICAL AREA: NO

EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 COMPLETED: 76-78 UPDATE SPO NAT AREAS

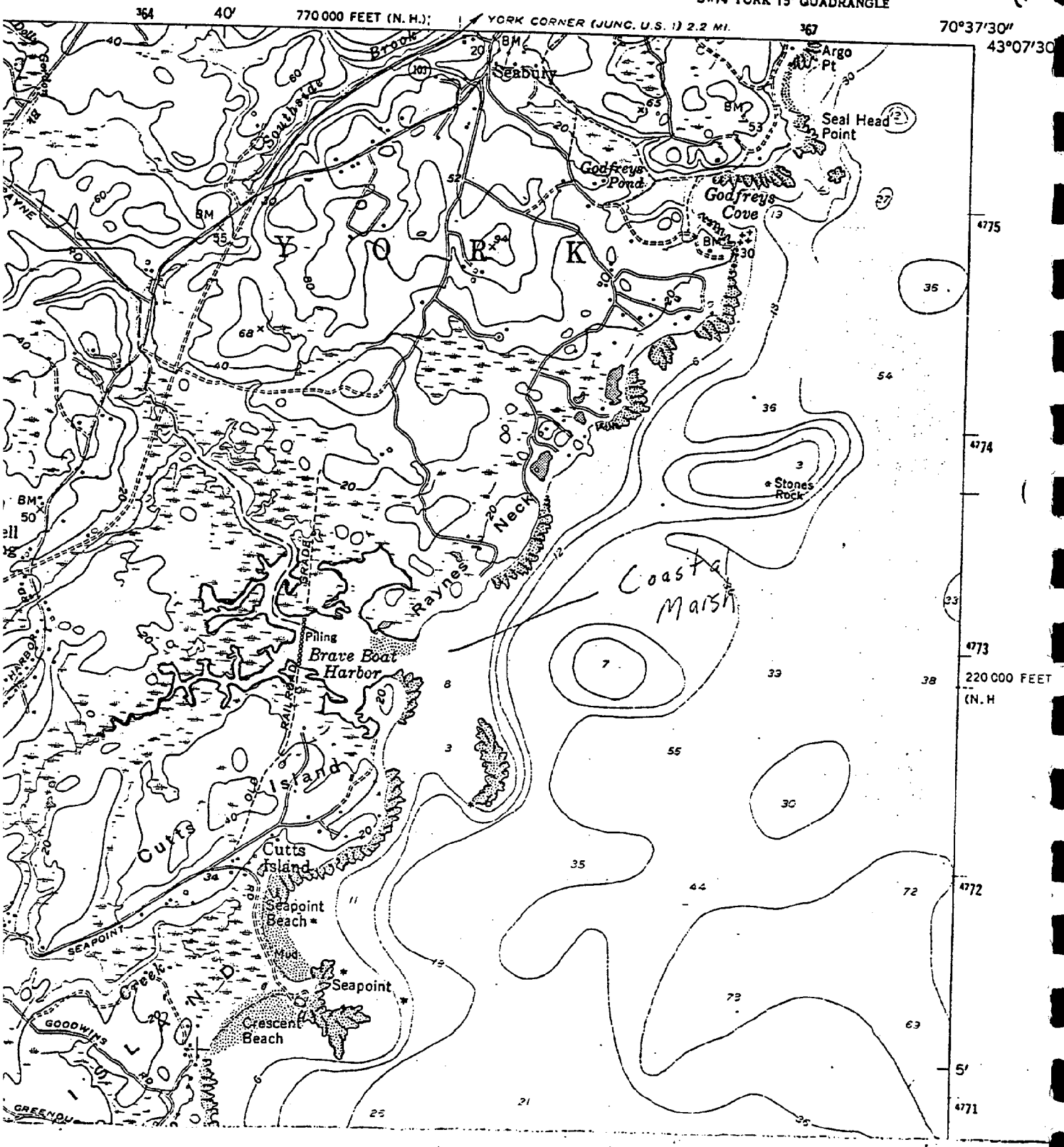
FIELD CHECKING: NO

CONTACT:
NAME: JOHN GREGG ADDRESS: JUNGLE RD
TOWN: YORK STATE: ME ZIP CODE: 03909 PHONE: 363-4834

MAJOR TYPE: BOTANY
GENERAL TYPE: SALTMARSH

DATE OF ENTRY: 1/26/76

KITTERY QUADRANGLE
MAINE—NEW HAMPSHIRE
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 YORK 15' QUADRANGLE



Ebbing Flowing Tide on US Coast

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 2011 NAME KITTERY TIDEWATER
LATITUDE 43-04-30 LONGITUDE 70-44-00

ESTIMATED ACREAGE: 90.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
THIS IS THE FASTEST FLOWING TIDEWATER ON THE U.S. COAST AND THE THIRD FASTEST IN THE WORLD.

VERIFICATION: VERBATIM FROM NATURAL AREAS INVENTORY

ESTIMATE OF SIGNIFIGANCE: NEW ENGLAND
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO;FRANK FRISBEE KITTERY POINT PORT AUTHORITY
CRITICAL AREA: NO

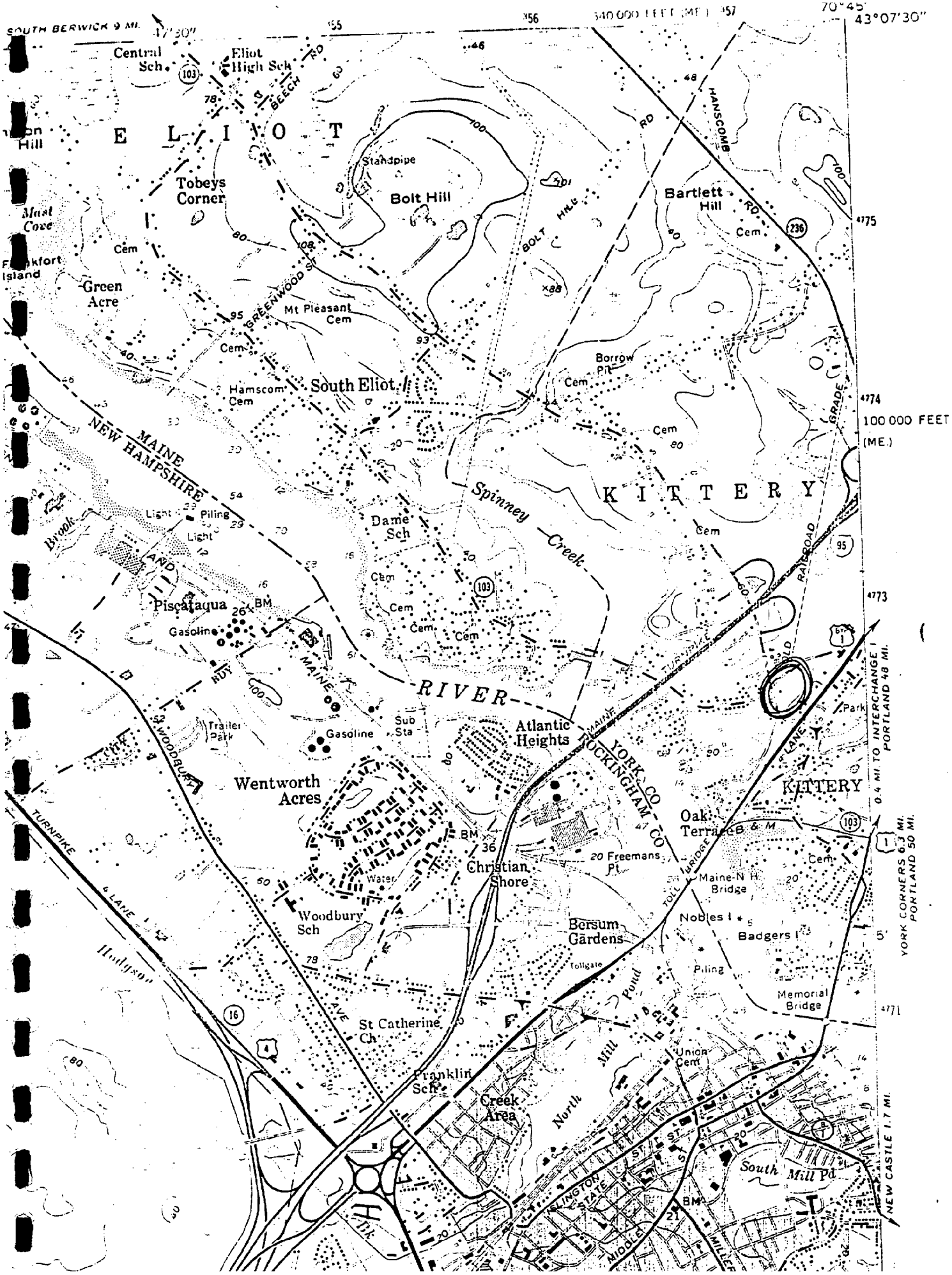
EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 INCOMPLETED: 76-78 UPDATE SPO NAT AREAS

FIELD CHECKING: NO

CONTACT:
NAME: FRANK FRISBEE ADDRESS: PEPPERRELL RD
TOWN: KITTERY POINT STATE: ME ZIP CODE: 03905 PHONE: 439-1981

MAJOR TYPE: HYDROLOGY
GENERAL TYPE: *****

DATE OF ENTRY: 1/26/76



SOUTH BERWICK 9 MI.
Central Sch
Eliot High Sch
BEECH RD
E L I O T
Tobeys Corner
Standpipe
Bolt Hill
BOLT HILL RD
Bartlett Hill
HANSCOMB RD
Mast Cove
Cem
Green Acre
GREENWOOD ST
Mt Pleasant Cem
Hamscom Cem
South Eliot
Borrow Pit
100 000 FEET (ME.)
MAINE
NEW HAMPSHIRE
Spinney Creek
K I T T E R Y
Light
Piling
Dame Sch
Brook
AND
Piscataqua
BM
Gasoline
RIVER
MAINE
Trailer Park
Sub Sta
Atlantic Heights
YORK CO
ROCKINGHAM CO
WOODBURY
Wentworth Acres
KITTERY
Oak Terrace
Park
0.4 MI. TO INTERCHANGE I PORTLAND 48 MI.
YORK CORNERS 6.3 MI. PORTLAND 50 MI.
TURNPIKE
4 LANE
Christian Shore
Freemans Pt
Water
Maine-N H Bridge
Woodbury Sch
Bersum Gardens
Nobles I
Badgers I
Tollgate
Piling
Memorial Bridge
Hodgson
AVE
St Catherine Ch
Pond
Mill
Union Cem
Franklin Sch
Creek Area
North
South Mill Pd
ISLINGTON ST
STATE ST
MIDDLE ST
MILLER
NEW CASTLE 1.7 MI.

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 175 NAME ISLES OF SHOALS
LATITUDE 43-00-00 LONGITUDE 70-36-45

ESTIMATED ACREAGE: 150.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
THIS AREA IS AN EXCELLENT MIGRATORY BIRD STOP. HERON ROOKERY AT APPLEDORE ISLAND.

VERIFICATION: BY FIELD CHECKING-SPO

ESTIMATE OF SIGNIFIGANCE: STATE
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO;HANK TYLER A PLANNER & BIOLOGIST WITH THE STATE PLANNING OFFICE
CRITICAL AREA: NO

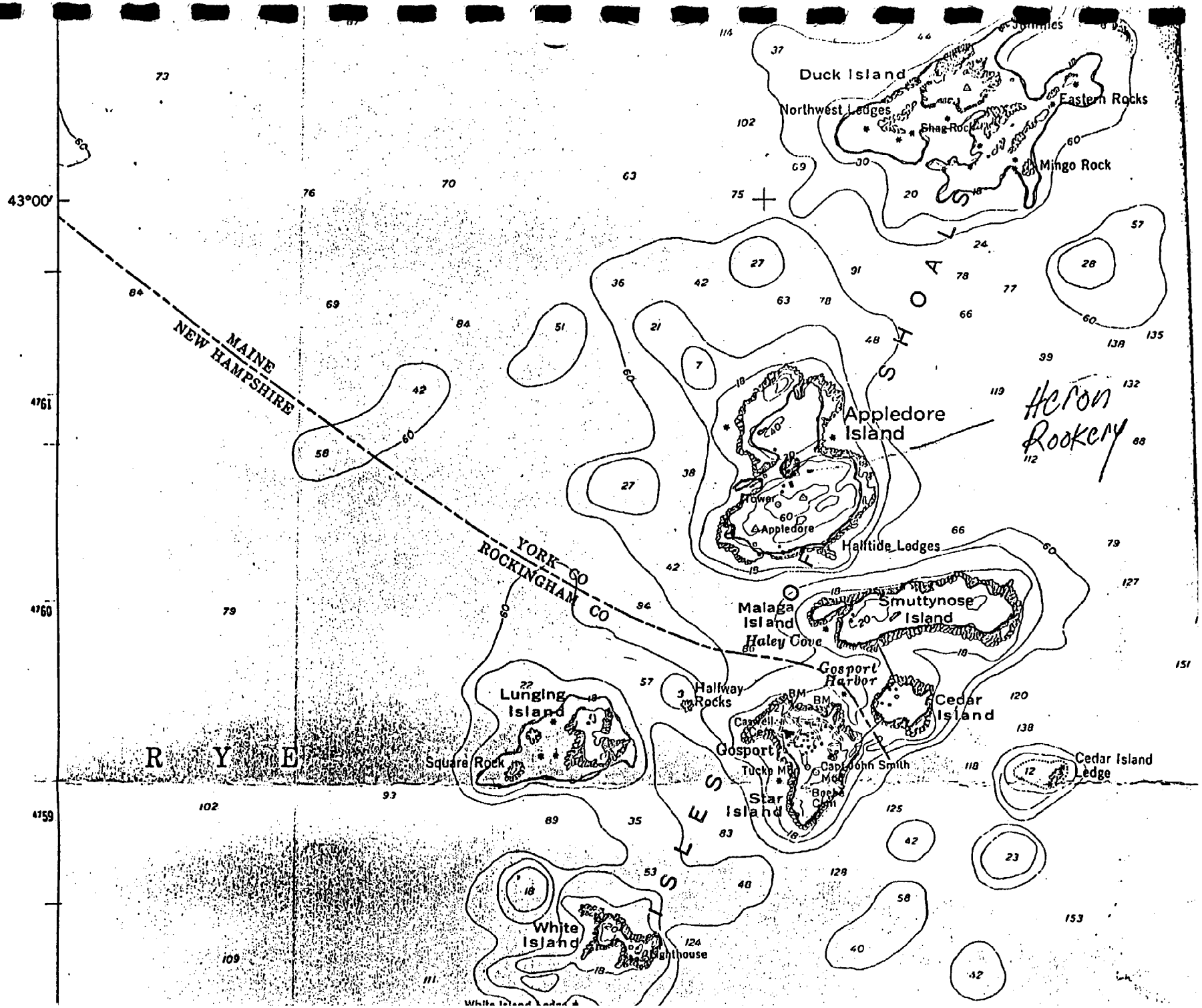
EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 COMPLETED: 76-78 UPDATE SPO NAT AREAS

FIELD CHECKING: YES
DATE: 7/29/75 BY WHOM: HANK TYLER ADDRESS: STATE PLANNING
TOWN: AUGUSTA STATE: ME ZIP CODE: 04333 PHONE: 289-3154
LOCATION OF INFORMATION: STATE PLANNING OFFICE

CONTACT:
NAME: HANK TYLER ADDRESS: STATE PLANNING
TOWN: AUGUSTA STATE: ME ZIP CODE: 04333 PHONE: 289-3154

MAJOR TYPE: ZOOLOGY
GENERAL TYPE: WATERFOWL RESTING AREAS

DATE OF ENTRY: 1/26/76


Duck Island
Northwest Ledges
Shag Rock
Eastern Rocks
Mingo Rock
Appledore Island
Heron Rookery
Tower
Appledore
Halftide Ledges
Malaga Island
Haley Cove
Smuttynose Island
Gosport Harbor
Hallway Rocks
Cedar Island
Lunging Island
Square Rock
Gosport
Star Island
Cedar Island Ledge
White Island
Lighthouse
MAINE
NEW HAMPSHIRE
YORK CO
ROCKINGHAM CO
R Y E
43°00'
4761
4760
4759

Admiralty Village
Eagle Pt
Spruce CREEK
KITTERY
Highland Cem
Orchard Grove Cem
Park
Kittery Foreside
Squash Island
Seavey Island
PORTSMOUTH NAVAL SHIPYARD
Four Tree Island
Swimming Pool
MAINE
NEW HAMPSHIRE
Lights
Pierces Island
Little Island
Henderson Point
Goat Island
Shaws Hill
Riverside Cem
NEW CASTLE AVE
Shapleigh
Frame Pt
Lady Isle
CITY BDY
Pest Island
Leechs Island
Clampit Island
Goose Island
Blunts Island
Creek
PORTSMOUTH
Jamaica Island
Hick Rocks
PORTSMOUTH
Clarks Island
Sullivan Point
PISCATAQUA
HARBOR
Yacht Club
Salamander Point
Fort Pt
FORT CONSTITUTION
Lighthouse
Lookout Tower
New Castle
Boatswain Hill
Castle Island
NEW CASTLE
New Castle
Swimming Pool
U S NAVAL RES (FORT STARK)
Beacon
RIVER
Barters Creek
Crocketts Neck
Crocketts
Cutts Pond
Kittery Point
Mitchell Sch
FT McCLARY
STATE PARK
Frisbee Wharf
Hoyts Island
Phillips Island
Pepperrell Cove
Gooseberry Island
Fishing Island
False
Wood Island
Whaleback Reef

Spawning Sc

NATURAL AREA IN KITTERY IN YORK COUNTY

NATURAL AREA # 1994 NAME PISCATAQUA RIVER
LATITUDE 43-04-45 LONGITUDE 70-43-30

ESTIMATED ACREAGE: 80.0
OWNERSHIP: PRIVATE

BRIEF DESCRIPTION:
SPAWNING SCALLOPS AT THE MOUTH OF SPRUCE CREEK WHERE IT ENTERS PORTS-
MOUTH HARBOR. HARVESTING HAS TAKEN PLACE COMMERCIALLY IN RECENT YEARS.

VERIFICATION: BY CORRESPONDENCE/TELEPHONE-SPO

ESTIMATE OF SIGNIFICANCE: LOCAL
DATA SOURCES: NATURAL AREAS INVENTORY 1971
SPO:BRAD STERL REGIONAL BIOLOGIST MARINE RESOURCES
CRITICAL AREA: NO

EXTENT OF INFORMATION AND LOCATION:
MAPPED 1971 INCOMPLETED: 76-78 UPDATE SPO NAT AREAS

FIELD CHECKING: NO

CONTACT:
NAME: BRAD STERL ADDRESS: BOX 12 DIXON RD
TOWN: OGUNQUIT STATE: ME ZIP CODE: 03907 PHONE: 646-3322

MAJOR TYPE: ZOOLOGY
GENERAL TYPE: MARINE INVERTEBRATES

DATE OF ENTRY: 1/27/76

Register of Critical Areas

The State Planning Office is charged with administering the Critical Areas Act. For further information, please contact the State Planning Office, Critical Areas Program, 184 State Street, Augusta, Maine, 04333, Telephone (207) 289- 3261

1. Name Sea Point Marine Invertebrate Area

2. Critical Area Number 373 = Natural Area 2388

3. Location

   A. York County
   B. Town of Kittery
   C. Minor Civil Division Code Number - 31130
   D. Latitude: 43° 05' 09" Longitude: 70° 39' 39"
   E. U.S.G.S. Quadrangle: Kittery, Maine-N.H. 7.5' (1956)

4. Owner's Name and Address

   Town of Kittery
   Town Hall
   200 Rogers Road
   Kittery, Maine 03904

5. Boundaries and Size of the Area

   The critical area north boundary begins on the north side of Sea Point at the eastern boundary of Lot 38A, and runs following the high tide lines eastward and then southward to where the rocky shore meets the sand beach, a distance of approximately 1400 feet. The width of the critical area extends from high tide to low tide, a distance of approximately 50 feet. This area includes about 70,000 square feet or 1.6 acres.

6. A Description of the Area Including a Listing of its Unusual Qualities and the Reason(s) for its Inclusion on the Register

Sea Point in Kittery is a granite headland which protrudes out to sea with Seapoint Beach to the north and Crescent Beach to the south. Tide pools are present along the shoreline. Sea Point is directly exposed to waves from the easterly direction and thereby supports a number of marine invertebrates. At least 59 different species of marine invertebrates have been recorded here at one time or another.

Sea Point is a favorite collecting site for professors and their students from a number of universities, colleges and schools, principally the University of New Hampshire and Nasson College. The area is visited because of its accessibility and the variety of marine invertebrate species present. The Town of Kittery's Parks and Recreation Department maintains the area as a recreational area.

Species list for the intertidal rocky shore area have been compiled by Dr. Joseph Simon while at the University of New Hampshire, and Dr. Norman Meinkoth of Swathmore College.

Species that have been recorded at Sea Point, and which are characteristic of rocky intertidal areas include: the sponge Halichondria panicea; the anemone, Metridium senile; the limpet Acmaea testudinalis; mermaids toenail Anomia simplex; slipper shell Crepidula fornicata; three species of periwinkles: Littorina littorea, Littorina saxatilis, and Littorina obtusata. The blue mussel Mytilus edulis and dogwhelk Thais lapillus are also present.

Annelid worms that have been collected at Sea Point in the rocky intertidal area include: the Scale worms Harmothoe imbricata and Lepidonotus squamatus; and Spirorbis borealis and Spirorbis spirrillum which are found attached to Fuscus sp.

Members of the arthropod phylum found at Sea Point include: the common barnacle Balanus balanoides, the rock crab Cancer irroratus and green crab Carcinus maenas, and iospod Idotea baltica.

Echinoderms that live in the tide pools and under rocks at Sea Point and that are characteristic of high species areas include: the brittle star Amphipholis squamata, and Ophiophelis aculeata; the Sea cucumber Cucumaria frondosa; the starfish Asterias forbesi, Asterias vulgaris and Henricia sanguinolenta; and the sea urchin Strongylocentrotus drobachiensis.

Noteworthy species found in the rocky intertidal zone include: Zirfaea crispata, the nudibranchs Dendronotus frondosus, Doto coronata, Onchidorus fusca, Onchidorus aspera, and Choryphella rufibranchialis.

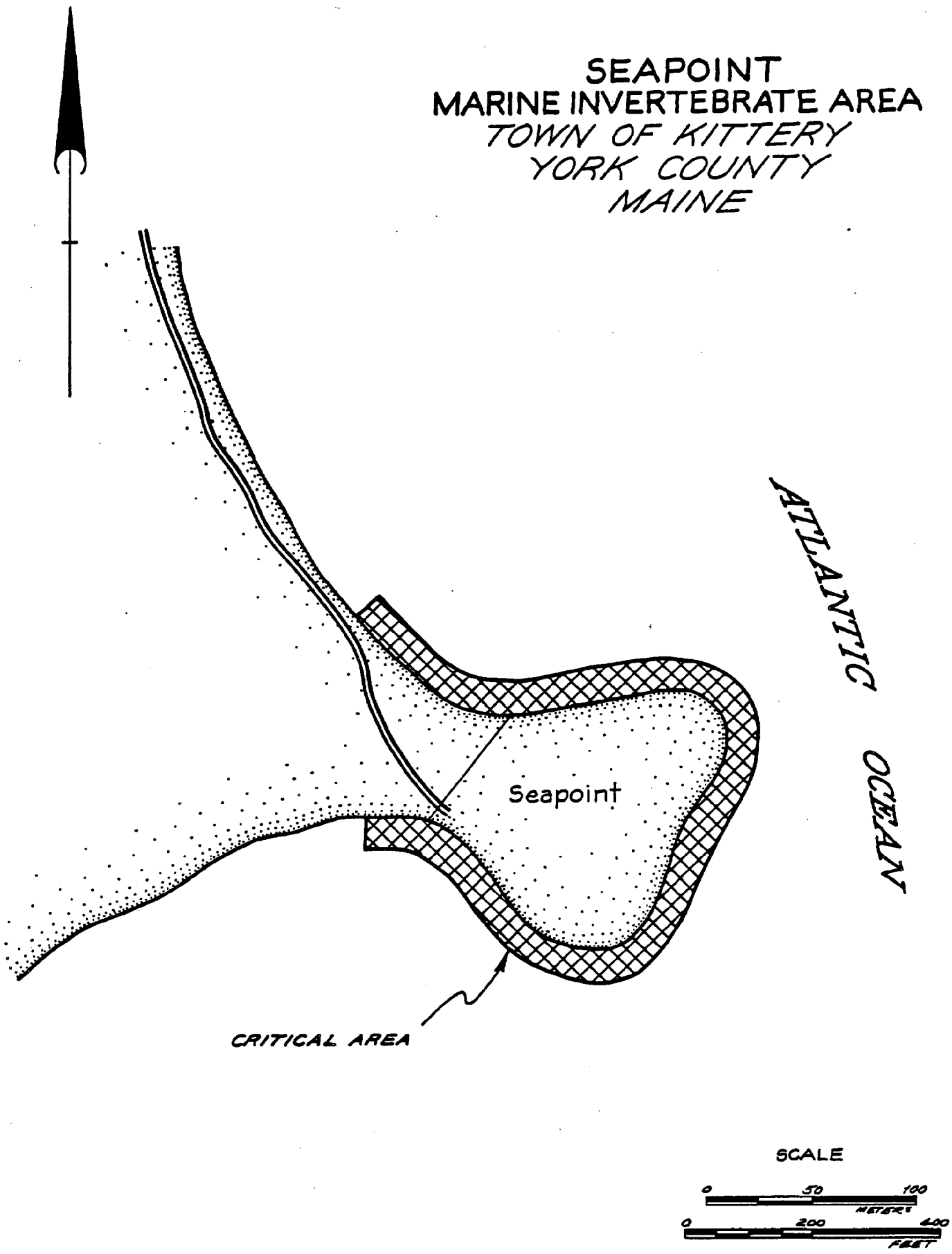
Sea Point is one of 18 documented high diversity marine invertebrate areas on high energy rocky shores on the Maine coast. It is included on the Register because of the high variety of species present and because it is a prime location for educational studies and Marine research.

For further information, see the planning report number 55 on Intertidal Bedrock Areas of High Species Diversity by Doggett, Larsen and Sykes.

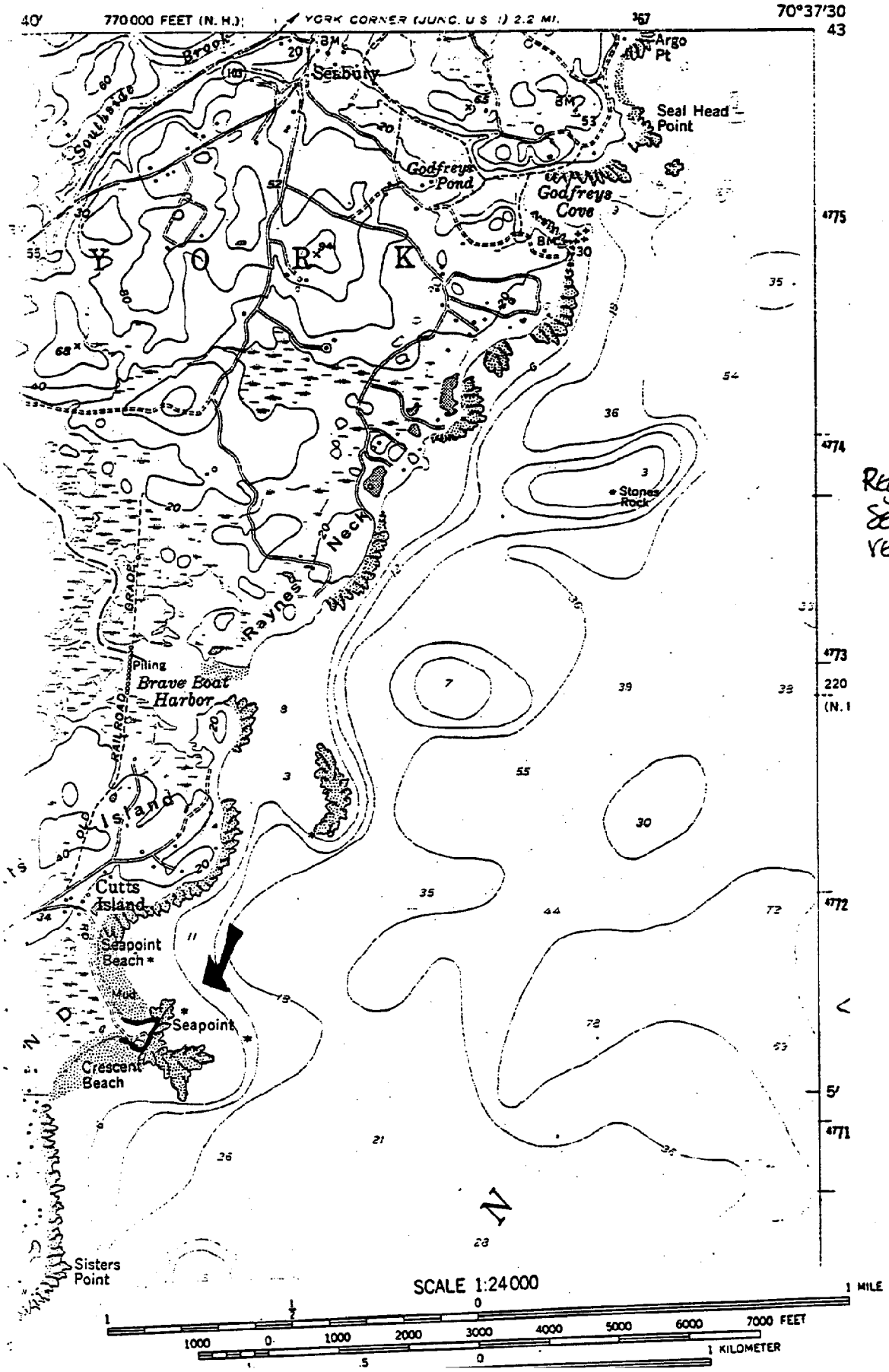
7. Date Registration Becomes Effective

October 8, 1981

SEAPOINT
MARINE INVERTEBRATE AREA
TOWN OF KITTERY
YORK COUNTY
MAINE



KITTERY QUADRANGLE
MAINE—NEW HAMPSHIRE
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 YORK 15' QUADRANGLE



Register of Critical A
Seapoint Marine In-
vertebrate Area

KITTERY, ME.—N
SW/4 YORK 15' QUADRANG
N4300—W7037.5/7.5

1956

PHOTOREVISED 1973
AMS 6870 II SW—SERIES

Iva frutescens L. var. oraria Fern. and Grisc. Marsh-elder

Threatened

Number of Towns:	Total-2; known (1980)-2*
Criteria Met:	FEW, NLR, VULN
Range:	Along coast, western Nova Scotia and southern Maine to Virginia
Habitat:	Salt marshes
Reasons for Rarity:	At northern limit of range: not rare southward
Comments:	First reported from Maine in 1976 by Hank Tyler. The Maine stations are vulnerable to winterkill and may fluctuate in health from year to year
CAP Documentation:	3 stations verified but all need further documentation

*Does not include one station for which no voucher specimen was collected: see Note.

LINCOLN COUNTY

Westport:	Rocky beach, Hubbard's Point Westport Island October 11, 1976 L.M. Eastman and C. Paul Wight NEBC	Field Check 1978 Gawler and Tyler EXTANT

SAGADAHOC COUNTY

Georgetown:	Beals Island July 1976 Hank Tyler MAINE	EXTANT

Note

Clotilde Straus showed the Critical Areas Program staff a station of Iva frutescens in Kittery, York County, in 1979. Photographs are on file with the Program, but no voucher was collected.

(ask Hank Tyler for her address)

CRITICAL AREAS PROGRAM BOTANICAL FACT SHEET NUMBER 114

The State Planning Office is charged with administering Maine's Critical Areas Act. For more information please contact the State Planning Office, Critical Areas Program, State House Station 38, Augusta, Maine, 04333; telephone (207) 289-3261.

BACKGROUND

Name: Bitternut Hickory, Carya cordiformis (Wang.) K. Koch

Family: Walnut family (Juglandaceae)

Habitat: Dry or moist forests.

Range: Southern Quebec to Minnesota, south to Florida and Texas.

Phenology: Flowers appear in spring as leaves open.

Aids to Identification: Large trees with scaly (but not shaggy) bark. Winter buds bright orange-yellow. Leaves alternate, pinnately compound with 5 to 11 (commonly 7 or 9) leaflets, the terminal leaflets largest. Fruit rounded, with slightly winged sutures on the husk. Nut slightly angled and tipped with a point.

Ecological Characteristics: Bitternut hickory is a component of the White Oak/Red Oak/Hickory Forest Cover Type on well-drained upland soils, and an associate of White Oak Forest Cover Type on upland loamy soils in the North Central Forest Region. Cutting of oak in the former type has increased the proportion of hickory. Bitternut hickory is also a prominent hardwood in the Swamp Chestnut Oak/Cherrybark Oak Forest Cover Type in the Southern Forest Region, occurring on fine sandy loam soils on ridges.

Technical description:

(1. C. illinoénsis (Wang.) K. Koch
2. C. aquática (Michx. f.) Nutt.

4. C. ovàta (Mill.) K. Koch)

3. C. cordifórmis (Wang.) K. Koch (heart-form; from the nut), PIGNUT, BITTERNUT, SWAMP-H., NOYER DUR (Que.). — Differing from no. 2 in the *lanceolate valvate scales of overwintering buds sulfur-yellow with persistent scurf; leaflets 5–9(–11), lanceolate to lance-ovate, hardly falcate, pubescent beneath; stamens 4; fruit cylindric to compressed, the husk wingless at base, splitting only to below middle; nut 4-locular in lower half, the shell smoothish, gray.* — Wet to dry woods, stream-banks and swamps, Fla. to Tex., n. to N.H., sw. Que., s. Ont., Mich., Wisc., Minn. and se. Neb. — Crosses with no. 1, producing × C. Brownii Sarg. (named in 1913 for its discoverer, GEORGE M. BROWN); and with no. 4, producing × C. Lâneyi Sarg. (named in 1913 for C. C. LANEY).

[Page 528 in Gray's Manual of Botany, Eighth Edition (Fernald 1950), American Book Company, New York. Used by permission].

Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, Second Edition.

STATUS OF CARYA CORDIFORMIS

PROPOSED ENDANGERED IN MAINE:

CURRENTLY KNOWN STATION-
1987: Kittery, along Spinney Creek (new State record)

VOUCHERED BUT NOT RECENTLY SEEN STATIONS-
None

STATUS IN OTHER AREAS:
Apparently common in other states and provinces where it occurs.

POPULATION TRENDS: Unknown.

REASON FOR RARITY:
Bitternut Hickory is at the Northern limit of its range in Maine.

SIGNIFICANCE LEVEL: State

RARITY CRITERIA MET: Few populations

JUSTIFICATION

This species has been included on the draft list of Maine's plants that are Endangered or Threatened by meeting the criteria contained in An Act to Establish an Official Endangered Plant List. This fact sheet was prepared following the recommendations in An Annotated List of Maine's Rare Vascular Plants, prepared for the program by Susan C. Gawler (1981).

Additions to and/or corrections of the material herein are welcome.

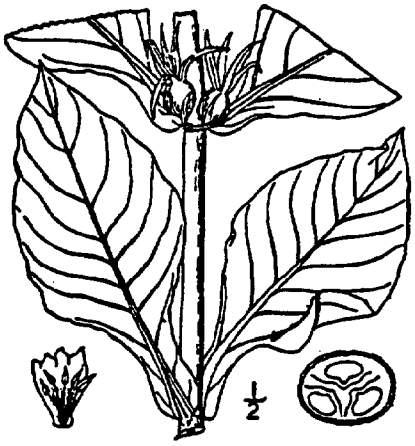
This fact sheet prepared by Patricia E. DeHond May 16, 1988

td/wp/5/02

CRITICAL AREAS PROGRAM BOTANICAL FACT SHEET NUMBER 95

The State Planning Office is charged with administering Maine's Critical Areas Act. For more information, please contact the State Planning Office, Critical Areas Program, 184 State Street, Augusta, Maine 04333; telephone (207) 289-3261.

BACKGROUND



Name: Triosteum aurantiacum Bickn. (=Triosteum perfoliatum L. var. aurantiacum (Bickn) Wieg.) Wild Coffee, Orange-fruited Horse Gentian

Family: Caprifoliaceae (Honeysuckle family)

Habitat: Rich, moist woods, alluvial thickets

Range: Cape Breton to western Ontario, Minnesota, south to North Carolina, Kentucky, Kansas

Phenology: In Maine flowers in June, fruits, green in summer, mature to bright orange by fall.

Aids to identification: Orange-fruited Horse Gentian is a coarse, tall, and hairy perennial herb. Its large eggshaped leaves grow in pairs, usually united by a ridge around the stem. The flowers, borne 1-4 in the axils of the leaves, are a dull red-purple, somewhat bell-shaped, with five unequal lobes. The most distinctive feature of the plant are its conspicuous bright orange hairy fruits crowned by persistent sepals. Some authors treat this species as a variety of Triosteum perfoliatum which does not occur in Maine and is generally larger, hairier, with regular, tubular flowers and leaves that meet around the stem.

Ecological characteristics: Although it can apparently grow in shade, in dry or rocky woods, this species seems to grow most vigorously in rich, moist soil where it receives atleast partial sunlight. Usually fruits abundantly.

Technical description:

1. T. perfoliàtum L. (with leaves meeting around the stem), TINKER'S-WEED, WILD COFFEE. — Coarse, 0.5–1.2 dm. high; stem densely glandular-puberulent above; *leaves* dark green, thickish, densely velutinous-puberulent beneath, *oval to oblong-ovate; the larger with mature blades* 0.5–1.5 *dm. broad*, 1–3 *dm. long*; 3–5 *of the middle ones strongly panduriform, the connate enlarged bases of the larger* 3–9 *cm. broad*; flowers erect, mostly 3 or 4 to an axil; *calyx-lobes attenuate to acute tips*, 0.9–2 (*av.* 1.4) *mm. broad; corolla tubular-campanulate, hardly bilabiate*, 0.8–1.7 cm. long, *firm, yellowish or greenish to dull purple*, densely glandular-puberulent, *about equaling stamens; style* usually *exserted* 1.5–3 *mm.; fruits subglobose, dull orange-yellow.* — Rocky or thin soils, woods and thickets, Ga. to e. Kans., n. to Mass., e. N.Y., W.Va., Mich., Wisc., Minn. and Neb. *Fl.* mid-May–early July; *fr.* Aug.–Oct.

→ 2. T. aurantiacum Bickn. (orange-colored), WILD COFFEE. — Differing from no. 1 in stems less densely glandular-puberulent, *usually with spreading glandless hairs up to* 1.5 *mm. long; leaves all distinct and tapering to narrow bases or rarely* 1–3 *pairs with undilated connate bases* 1–2 *cm. broad*, the lower surfaces less densely pubescent; flowers 1–3 in an axil; *calyx-lobes* blunt or merely acutish, 1.5–2.8 (*av.* 2) *mm. broad; corolla dilated above, distinctly bilabiate, red-purple, petaloid, much exceeding stamens; style* usually *included; fruit ellipsoid-ovoid, bright orange-red.* (*T. perfoliatum*, var. Wieg.) — Rich woods and thickets, C.B., w. N.B. and s. Que. to w. Ont., s. to N.E., Md., upland Ga., Ky., Ill. and Ia. *Fl.* mid-May–July; *fr.* Aug.–Oct. In neighboring areas flowering later than no. 1.

page 955 in Gray's Manual of Botany, Eighth Edition (Fernald 1950) American Book Company, New York. Used by permission.

Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2 ed.

OVER

STATUS OF *Triosteum aurantiacum*

IN MAINE

Currently known stations:

Aroostook County: Caribou - steep slope along railroad tracks above Aroostook River, seen 1982

Vouchered but not recently seen stations:

Aroostook County: Washburn - rivershore, 1941

Cumberland County: Sebago - along small stream E. Sebago, 1933

→ York County: Kittery - woods, 1916; rocky slope near sea beach, Kittery Point, 1950; 1905.
York - oak-hickery woods, York Harbor, 1961

OTHER STATES/PROVINCES: also rare in New Hampshire, Georgia, Iowa and Nova Scotia.

POPULATION TRENDS: Unknown

REASON FOR RARITY: at northern limit of range

SIGNIFICANCE LEVEL: State

RARITY CRITERIA MET: FEW, Northern limit of range

JUSTIFICATION

This species has been included on Maine's working rare plant list on the recommendation of Maine botanists and by meeting the criteria for inclusion contained in Rare Vascular Plants of Maine, a Critical Areas Program report (1981). Herbarium citations and additional information may be found in that report. This fact sheet was prepared following the recommendations in An Annotated List of Maine's Rare Vascular Plants, a report prepared for the Program by Susan C. Gawler (1981).

Additions to and/or corrections of the material herein are welcome.

Prepared by Barbara St. John Vickery January, 1983

REGISTER OF MAINE CRITICAL AREAS

The State Planning Office is charged with administering the Critical Areas Act. For further information, please contact the State Planning Office, State House Station 38, 184 State Street, Augusta, ME 04333. Telephone (207) 289-3261.

1. Name: Kittery Wild-Coffee Station

2. Critical Area No. 603

3. Location:

   A. York County
   B. Town of Kittery
   C. Minor Civil Division Code Number - 31130
   D. Latitude: 43° 05' 42" Longitude: 70° 39' 57"
   E. U.S.G.S. Quadrangle: Kittery, Maine-NH 7.5' (1973)

4. Owner's Name and Address:

   Mr. and Mrs. Douglas E. Welsher
   9 Brandy Street
   Medford NJ 08005
   (Lot 64 - 10A)

5. Boundaries and Size of the Area:

   The Critical Area is located on the northern end of Cutts Island along a privately owned residential dirt road. The area is bounded on its northern side by a small dirt driveway that leads to a house and tennis court. The eastern boundary is along the road; the southern boundary ends where a driveway on the eastern side of the road leads to the ocean. The Critical Area extends back from the road (western boundary) approximately 100 feet; total area includes 0.34 acres (0.14 hectare).

6. A Description of the Area Including a Listing of its Qualities and the Reason(s) for its Inclusion on the Register:

   On the northeastern end of Cutts Island a large, robust population of the rare orange-fruited horse-gentian (*Triosteum aurantiacum*) thrives in a shallow wooded gully. Orange-fruited horse-gentian, also known as wild-coffee, is found growing in rich, moist woods and alluvial thickets from Cape Breton to western Ontario, Minnesota, southern to

North Carolina, Kentucky, and Kansas. It is also considered rare in New Hampshire, Georgia, Iowa and Nova Scotia. In Maine there are only two stations currently known and only five others historically recorded. For more information see Botanical Fact Sheet No. 95.

Wild-coffee or Orange-fruited horse-gentian is a coarse, tall and hairy perennial herb. It has large, egg-shaped leaves and in the axils of these leaves, in early fall, the bright orange fruits mature and are very conspicuous.

At the Kittery Wild-Coffee Station several hundred orange-fruited horse-gentians grow in a 150 foot stretch alongside the road. The plants are found in rich woods with an overstory of red oak (*Quercus rubra*) and shagbark hickory (*Carya ovata*). Shagbark hickory stands are also significant because hickory reaches the northern limit of its range in Maine. The understory is composed of honeysuckle (*Lonicera* sp.), early meadow rue (*Thalictrum* sp.), beggar's lice (*Hackelia virginiana*), jewelweed (*Impatiens capansis*), blackberry (*Rubus allegheniensis*), and false solomon's-seal (*Smilacina racemosa*).

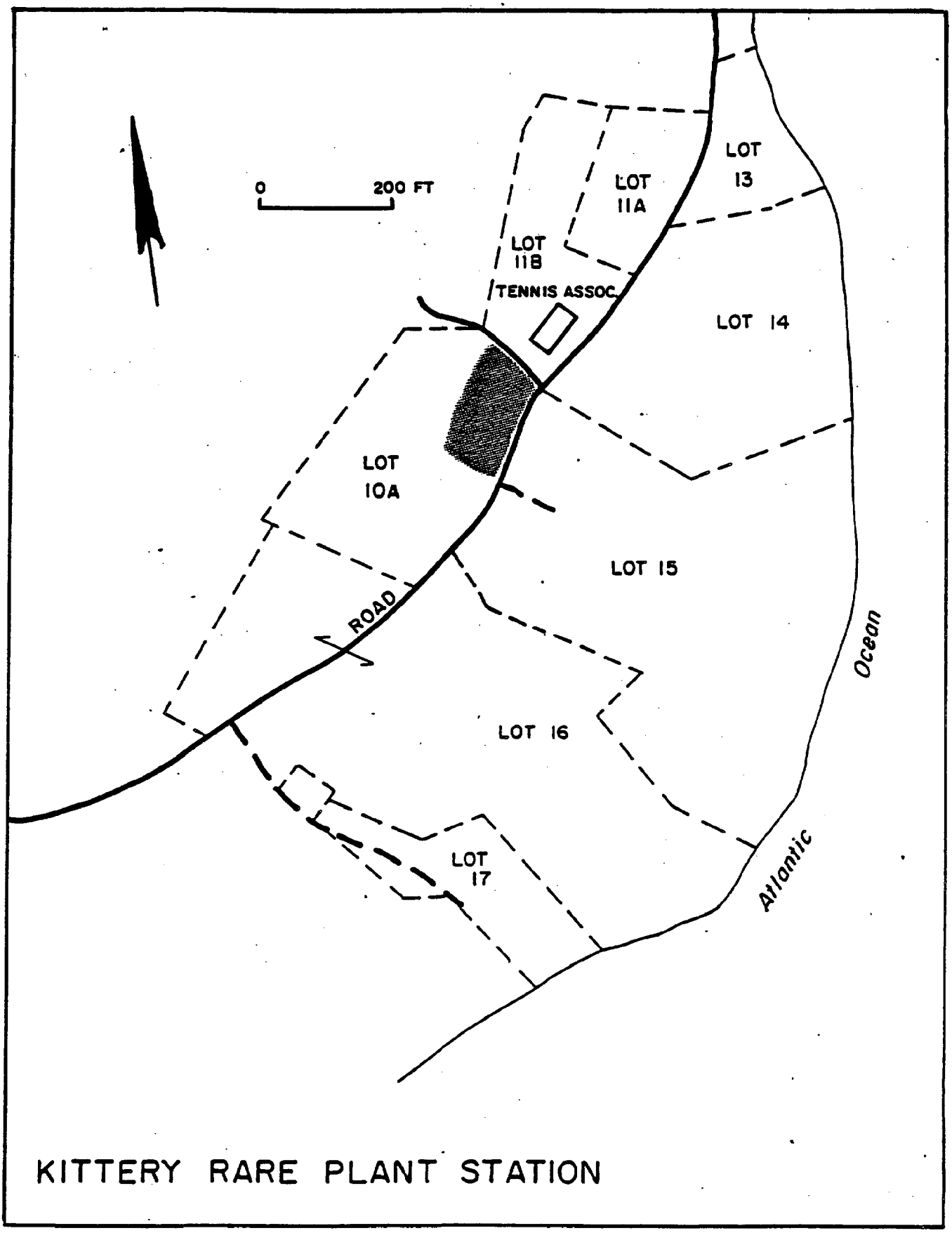
The Kittery Wild-Coffee Station qualifies for inclusion on the Register of Critical Areas because it supports a large population of the rare *Triosteum aurantiacum* which is one of only two currently known stations in Maine and is of State significance. This plant is listed as Threatened on the Official List of Maine Plants that are Endangered or Threatened.

7. Action Taken by the Critical Areas Advisory Board:

On July 29, 1988 the Board voted to include the Kittery Wild-Coffee Station on the Register of Critical Areas.

Prepared by Naomi Edelson July 1987

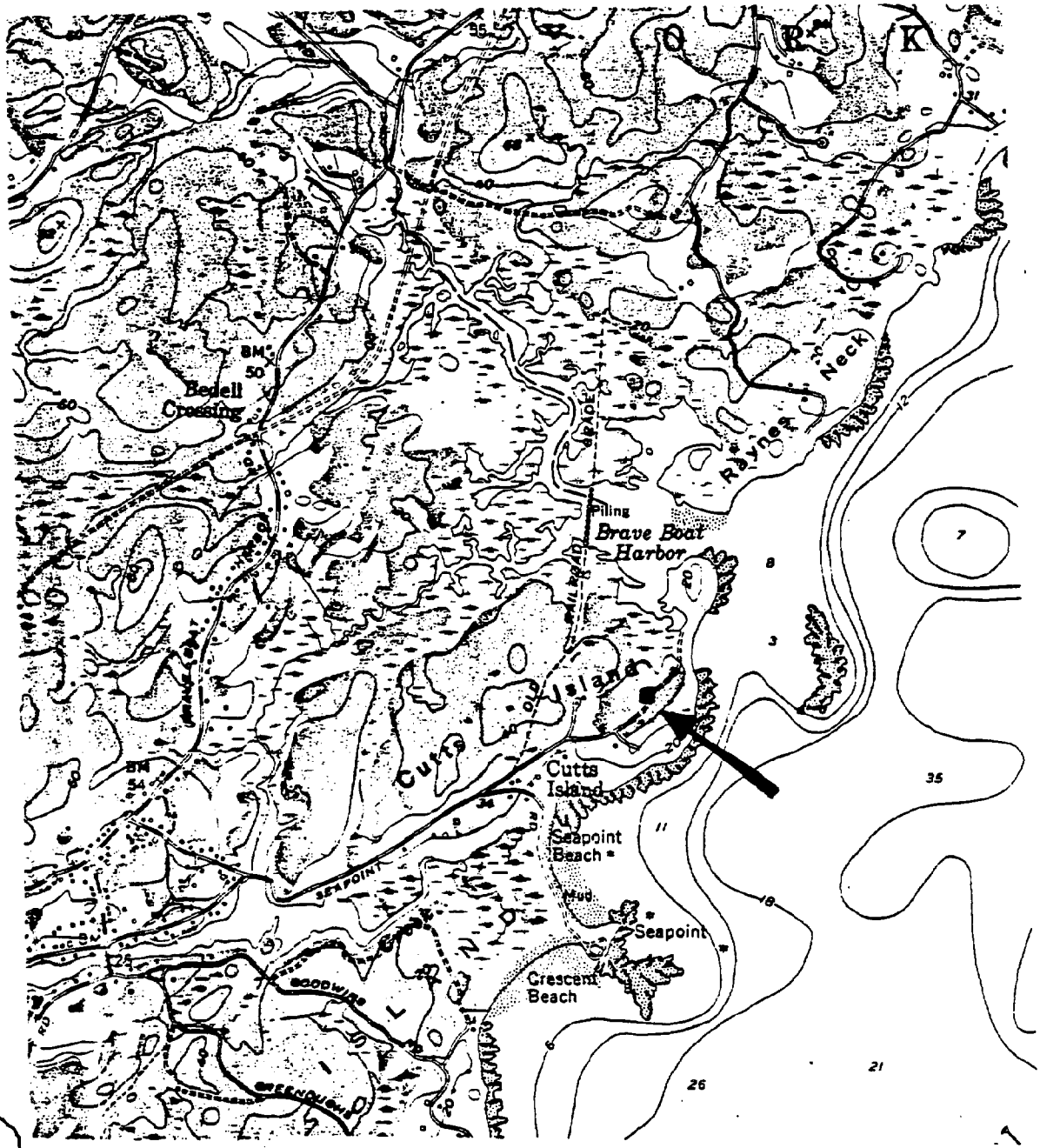
wp/7/14

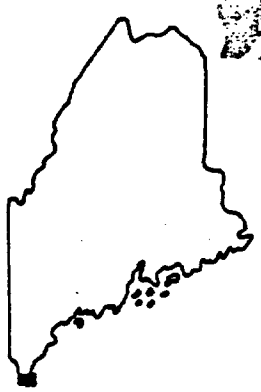


KITTERY RARE PLANT STATION

MAINE REGISTER OF CRITICAL AREAS

Kittery Wild-Coffee Station





Location Map

SCALE

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miles

Contour Interval Feet

County - York

USGS 7.5' Quadrangle - Kittery, Maine - N.H. (1973)

APPENDIX D:

EXISTING KITTERY PORT AUTHORITY RULES & REGULATIONS

TOWN OF KITTERY
PORT AUTHORITY
RULES AND REGULATIONS
PERTAINING TO THE HARBOR, PORT AND CHANNELS WITHIN THE TOWN OF KITTERY, MAINE

These Rules and Regulations are promulgated under Section 4 of the Act Creating the Town of Kittery Port Authority, 100th Legislature of the State of Maine, HP 682 (Legislature Document No. 960), and under the general laws of the State as amended from time to time and shall have the force and effect of law as municipal ordinances and shall be construed in accordance with Title 38 M.R.S.A. as amended. These rules and regulations apply to boats, boating and the use of waters within the Town of Kittery. For regulations and ordinances regarding construction, alterations, additions or changes to new or existing structures, wharves or piers see applicable sections of the Town of Kittery Land Use and Development Code Zoning Ordinances.

I. DEFINITION

A. Berth: The place where a ship lies when at a wharf or pier.

B. Channels: Areas of the harbor kept open for navigation or other purpose by rule or regulation of the Port Authority, the Department of Army or other regulatory or legislative body.

C. Dock: The slip or waterway extending between two (2) piers or projecting wharves or cut into the land for the reception of vessels.

D. Float: A platform that floats and is anchored, moored or secured at or near the shore, used for landing or other purposes.

E. Harbor: The harbor shall include the tidal waters within the geographical limits of the Town of Kittery, Maine.

F. Harbor Master: An officer employed by the Port Authority to oversee the jurisdictional area of the Authority with power to make arrests, and having the authority, duties and responsibilities conferred by State statute and municipal rules, regulations and ordinances.

G. The Kittery Port Authority: A board of seven members appointed by the Kittery Town Council, without compensation, for the purposes and duties contained in the above act, and the Land Use and Development Code

Zoning Ordinance, and to serve the Council in the construction, maintenance and addition to town wharves under the jurisdiction of the Port Authority. Port Authority members in their role will adhere to conflict of interest protocols as outlined under the General Provisions of Article XII of the Town Charter.

H. Landing: A place for landing or discharging persons or things, as from a vessel.

I. Mooring: A mooring is a permanent, adequate means of securing a boat to the bottom in an anchorage.

J. Transient Courtesy Moorings: A Transient Courtesy Mooring, other than one maintained by the Town of Kittery, shall be a private mooring provided by commercial business and service organizations, including yacht clubs, for the occasional and limited use of guests.

K. Pier: A breakwater or mole extending into the harbor for use as a landing place, a promenade, or to protect or form a harbor; a structure built out into the water with piles for use as a landing place.

L. Port: The port includes the town wharves at Kittery and Kittery Point, together with all now known landings or wharves that might be acquired by the Town of Kittery or the Port Authority.

M. Vessels: Vessels shall include boats of all sizes propelled by sails, machinery or hand; scows, dredges, shell fish cars and craft of any kind.

N. Wharf: A structure of timber, masonry, cement, earth or other material, built on the shore of a harbor, river, canal, or the like, especially on extending parallel to the shore line, so that vessels may lie close alongside to receive and discharge passengers and cargo.

O. Marina: A marina is a dock or basin providing secured moorings for motor boats and yachts and often offering supply repair and other facilities; a dock or basin providing dockage, supplies and services such as storage and repairs to small crafts.

P. Mooring waiting list: A chronological list or lists of boat owners requesting mooring space in the tidal waters of the Town of Kittery. Persons shall be selected from such list or lists in accordance with the allocation provisions described in these Rules and Regulations.

Q. Mooring Permit: Shall be the assignment by the Harbor Master of a mooring space. All such mooring permits

shall be issued by the Harbor Master upon application by the boat owner according to these Rules and Regulations.

R. Municipal resident: "Municipal resident" means any person who occupies a dwelling within the Town of Kittery for more than one hundred eighty (180) days in a calendar year.

S. Commercial use: The boat shall be considered as used for commercial use when its principal purpose or use is in the pursuit of one's business or trade for the purpose of earning a livelihood. The burden of proof in establishing the commercial use of a boat shall be upon the boat owner.

HARBOR USE REGULATIONS:

A. Speed of vessels, reckless operation: Vessels shall be operated in the harbor at a reasonable speed and in such a manner as not to endanger craft, persons, or property. Vessels shall be operated so they do not create an excessive or damaging wake nor exceed a speed of five (5) knots in the following areas:

1. Pepperrell Cove including Chauncey Creek: In an area North of a line from Fishing Island Buoy No. 4 to the Northern end of Gooseberry Island.

2. Spruce Creek: The area from Hicks Rocks Spindle below Kittery Point Bridge to fifty (50) yards north of the old railroad tressel in Spruce Creek.

3. Back Channel: The area from Can No. 3 to the westernmost end of Badgers Island in the vicinity of Nun Buoy No. 18.

B. Channels: Channels for the passage of boats shall be maintained in the area under the jurisdictional limits of the Port Authority and shall be clear of any and all obstructions.

1. A channel is established from Nun Buoy No. 4 (Fishing Island), one hundred fifty (150) feet wide, to the town wharf at Kittery Point; also a fifty (50) foot wide deep water channel at the entrance of Chauncey Creek from Nun Buoy No. 4 to a line from the southern end of Phillip's Island (which is sometimes known as Moore's Island) to the northern end of Gooseberry Island. Chauncey Creek above this line shall be maintained as a mooring area with the Harbor Master laying out moorings in such a manner as to insure that the channel shall not be obstructed. The Harbor Master may require

bow and stern moorings, if necessary to insure clear passage in this area.

2. A fifty (50) foot channel is established from River Buoy No. 6 at Hicks Road north and westward up the Back Channel between Can No. 3 and Nun No. 8 through to the westernmost end of Badgers Island in the vicinity of Nun Buoy No. 18.
3. A fifty (50) foot channel is established from Hicks Rocks Spindle below Kittery Point Bridge to fifty (50) yards north of the old railroad tressel in Spruce Creek.

C. Anchorage: Vessels shall be anchored in the harbor in such places or areas as the Harbor Master shall direct. The Harbor Master may at any time order any vessel at anchor to change position when, in the exercise of his judgment, he determines that such vessel is so anchored as to impede navigation or to endanger other vessels. The normal anchorage area is designated as being to the north and west of Nun Buoy No. 4 and to the west of Pepperrell Cove mooring area.

D. Moorings: These regulations are promulgated to meet the U.S. Army Corps of Engineers requirements for Federal Anchorages and Title 38, Maine Revised Statutes Annotated (M.R.S.A.), §1 et. seq. as amended:

1. All mooring spaces except as otherwise provided by 38 M.R.S.A. §1 et. seq. shall be under the exclusive control of the Harbor Master and must be assigned according to the allocation provisions of this section from an established mooring waiting list of boat owners maintained by the Harbor Master. Allocation shall be governed by the following provisions:

   a) If at the time an individual applies for a mooring there is no waiting list, this individual shall be assigned a mooring without regard to allocation provisions.
   b) If there are applicants who are nonresidents who wish to moor a vessel the principal use of which is commercial and less than ten percent (10%) of the assigned moorings are currently assigned to persons fitting this description, the next mooring available shall be assigned to the first such person on the list.
   c) If there are applicants who are nonresidents who wish to moor a vessel the principal use of which is noncommercial and less than ten percent (10%) of the moorings are currently assigned to persons fitting this description, the next mooring available shall be assigned to the first such person on the list.

d) If both nonresident noncommercial and nonresident commercial assignments are below ten percent (10%) and there are both types of applicants on the waiting list, the available space shall be assigned to an applicant in the category that is the farthest below ten percent (10%). The burden of proof in determining residence and the principal use of a vessel shall be upon the applicant.

e) If more than ten percent (10%) of the moorings are currently assigned to nonresident noncommercial or nonresident commercial, the next mooring available shall be assigned to the first individual on the list in the ratio of ten (10) residential moorings to each nonresidential mooring, so that every eleventh (11th) mooring issued by the Harbor Master shall be issued to the next nonresident commercial or noncommercial mooring applicant.

2. Mooring waiting list applications are available from the Harbor Master. Application permits for existing mooring permit holders will be processed annually by the Harbor Master. The Harbor Master shall review this application permit with regard to space available for the type of boat so indicated, and with consideration of all local and state ordinances, rules and regulations. An individual's name on the waiting list may only be listed once. The procedure for individuals to add their names to the list shall be posted in a public place. The list shall be considered a public document under the Freedom of Access Law.

3. Application permits shall be filled out in the name of only one (1) individual boat owner regardless of whether there is multiple ownership or registration of the boat. Notwithstanding the above, permits or renewal permits may be filled out in the name of two (2) individuals if they are spouses at the time of the permit or renewal permit application.

4. Upon approval by the Harbor Master, it is the responsibility of the applicant to submit the approved application permit to the Town Clerk together with all fees due. The schedule of fees for such permits and applications will be established by the Port Authority in accordance with M.R.S.A. Title 38 §1 et. seq. Registration number and location for such mooring will be assigned by the Harbor Master who will advise the applicant of these rules and regulations. The individual must provide his own hardware.

5. Approved mooring permits or assignments are valid for one (1) year from the date of issuance and shall not be transferred. Moorings or mooring

assignments shall not be rented to or used by anyone other than the listed mooring assignment or permit holder unless the provision for rental or use by one other than the permit or assignment owner was part of the Agreement with the issuing authority when the mooring was initially assigned or permitted. Only the boat primarily owned by the mooring assignment or permit holder shall be on the mooring without the Harbor Master's permission.

6. At the termination of assignment of any mooring space to an individual, the mooring hardware shall be removed by the mooring permit holder unless the newly allocated individual indicates his willingness to acquire and utilize the existing hardware.

7. The licensed mooring permit holder shall be responsible for any and all fees due the Town of Kittery resulting from usage of their moorings.

8. The Harbor Master shall, insofar as the same may be done consistently with these Rules and Regulations and with due regard for the safety of other vessels and of navigation, give consideration to the choice of applicant. However, where mooring rights of the individuals are claimed to be invaded and protection is sought of the Harbor Master, he shall assign and indicate to the masters or owners of the vessels the location which they may occupy for said mooring, and he shall assign mooring privileges in cases where individuals who own shore rights are complainants, and shall locate suitable mooring privileges temporarily or permanently, fronting their lands if so requested, but not so as to encroach upon the natural channel or channels established by this Authority.

9. Adequacy of Moorings: All existing moorings hereinafter to be set shall be of sufficient size to hold the vessel for which it is used. An "Adequate Mooring" under this section shall conform to the following requirements:

   a. All moorings shall have been approved with the registration number assigned by the Harbor Master permanently affixed thereon. Such number shall be at least three (3) inches high and shall be clearly visible at all times. The Harbor Master may at any time examine any mooring or mooring line to determine compliance with this section, except in cases of emergency, he shall notify the owner of his intention to examine the mooring and request the presence of the owner during such examination. Moorings found to be inadequate with regards to the requirements to this section shall be corrected within forty-eight (48) hours of being so notified or they shall

be removed forthwith. Any cost of examination or removal resulting therefrom shall be borne by the owner of the mooring.

b. During the period of May 15 to October 15, no mooring shall be in excess of forty (40) feet in length from the anchor or block to the stem of the vessel and top lines shall be limited to 1/3 the length of the boat, except by written permission of the Harbor Master.

c. Registered owner listed on mooring permit is responsible for any damage caused by his boat whether such owner is aboard his boat or not.

10. Vessels Moored so as to Impede Navigation or to Endanger Other Vessels:
Vessels shall not be rafted together in a mooring or anchorage area without said vessels being occupied. All moorings, whether now existing or hereinafter set, shall be so located or relocated that the vessels secured thereby will not impede navigation within the harbor, nor endanger other vessels moored therein. If the Harbor Master shall find that any vessel is so moored as to impede navigation or to endanger other vessels he may require that the owner of the mooring take such steps, whether by shortening the scope of the mooring lines, or by the use of additional mooring or mooring lines, as will prevent such impeding of navigation or endangering of other vessels; or in the alternative he may order that the mooring be removed and relocated in the manner described in Section D8. In requiring the removal of a mooring because of its danger to other moorings, the mooring last set shall be the first ordered to be removed. Any person so ordered by the Harbor Master acting under this paragraph, shall remove the same within forty-eight (48) hours after so ordered; provided, however, that if the Harbor Master shall find an emergency requiring immediate action to prevent injury to life or damage to property, he may cause said mooring or any vessel attached thereto to be immediately removed and relocated. Any expense involved shall be borne by the owner of the mooring or vessel being removed.

11. Moving or Interfering with Moorings Belonging to Another: Except by direction of the Harbor Master, or with permission of the owner, no person shall move or interfere with any mooring or vessel in the waters of the Town of Kittery.

12. Transient Courtesy Moorings and Commercial Service and Rented Moorings:

(A) Municipal: Transient Courtesy moorings are provided and maintained by the Town of Kittery for the use of visiting vessels. Such vessels may use these moorings for a period of

no longer than twenty-four (24) hours, except under unusual circumstances with express permission of the Harbor Master. Schedule of fees for such usage will be established by the Port Authority.

(B) Non-Municipal: Transient Courtesy Mooring Assignments shall be for the use of visiting or guest vessels. Such moorings shall not be rented and shall be clearly recognizable and identifiable with distinquishing color or markings as determined by the Harbor Master. No vessels may use these moorings for a period longer than twenty-four (24) hours, except under unusual circumstances and only with the express permission of the Harbor Master.

(C) Commercial Service and Rental Moorings will be allowed only upon the approval of the Port Authority.

D. All moorings permitted in B and C above shall be allocated or assigned pursuant to the provisions of Section D governing moorings.

13. All boat owners must renew their mooring permit or assignment with the Harbor Master by May 1st of each year or prior to putting his/her boat on that mooring. Should the mooring permit holder fail to renew the mooring permit within two (2) calendar years from its last date of issue, the mooring permit shall be deemed to be abandoned and cancelled. Upon such abandonment, the Harbor Master will make a new assignment of the mooring space from the moorings waiting list in accordance with the allocation provisions of these Rules and Regulations.
14. Moored floats are only authorized with expressed permission of the Port Authority.
15. The Harbor Master shall have the authority to revoke an individual's mooring permit for any violation of these rules and regulations. Upon revocation, the Harbor Master shall promptly notify the individual that the mooring permit has been revoked.

E. Buoys other than for Mooring Vessels: No buoy of this type shall be placed in channels leading to wharves, nor shall such buoys be placed less than three (3) vessel lengths from a mooring for that vessel. The Harbor Master is empowered, in the interest of public safety, to require the removal of any buoys.

F. Public Wharves and Landings:

1. Obstruction: No person shall obstruct by any means whatsoever the free use of piers, docks and other

common landing places. The town wharves shall be used only for loading and unloading. Vessels shall not remain moored to the wharf or float for a period longer than thirty (30) minutes except by permission of the Harbor Master. The Harbor Master shall remove or cause to be removed any unattended vessel obstructing free use of piers, docks or other common landing places after due effort has been made to notify the Master or owner of said vessel of the above violation.

2. No person shall loiter, create a public nuisance or partake of alcoholic beverages on town wharves or landings. Town wharves or piers may be closed by the Police Department when it is warranted by acts of vandalism or disturbance of the peace.

3. Swimming: No person shall dive from, swim or skin dive without permission of the Harbor Master, within thirty (30) feet of town-owned floats.
   a. All dinghies, skiffs, or tenders tied to town-owned floats shall allow at least 10 feet of line between the float and boat.
   b. No boat more than twelve (12) feet in length shall be tied to a town-owned float except for loading and unloading.
   c. Boats tied to town owned floats causing damage to adjacent craft, whether due to their construction or design, will be subject to removal by owners on order of Harbor Master. All dinghies, skiffs or tenders tied to town floats are to be maintained and bailed free of water.
   d. Either a mooring number or boat name shall be prominently displaced on all dinghies, skiffs or tenders.
   e. Except where otherwise permitted by the Harbor Master, all dinghies, skiffs and tenders shall be removed from town-owned floats by October 15th of each year.

4. Storage: Personal property, such as lobster traps, bait, automobiles, cradles, boats, floats, etc., shall not be stored on town wharves or landings. Exceptions to this rule shall be considered on an individual basis. The designated loading zone shall be used only for lobster traps, fishing gear and items in transit.

G. Waste and Refuse: No person or vessel shall deposit, throw, sweep, or cause to be deposited or swept into the waters of Kittery, or into waters adjacent thereto, any gas or oil or bilge water containing same, ashes, dirt, stones, gravel, mud, logs, planks, or any other substance tending to obstruct the navigation of said harbor or waters adjacent thereto, or to shoal the depth of said harbor or pollute the waters thereof. No trash

or refuse shall be placed on any town float or pier except in designated containers.

III. HARBOR MASTER:

The Harbor Master shall enforce the Rules and Regulations pertaining to harbors and tidal waters under the jurisdiction of the Kittery Port Authority and the State of Maine as promulgated by the Authority, and shall cooperate with other Governmental agencies in enforcing their regulations. He shall, under the supervision of the Authority, oversee the jurisdictional area of this Authority, preserve and regulate navigation within said waters, assign moorings, require the same to be kept in safe condition, direct the removal of vessels, if necessity or emergency requires, regulate the use of town-owned wharves, piers, docks, landings or floats, inquire into and prosecute all offenses occurring within his jurisdiction and shall keep such records as the Authority may require and shall perform such other duties as the Authority may prescribe. The Harbor Master's appointment may be revoked by the Authority at any time for cause. The Harbor Master shall be appointed for a minimum term of one (1) year, his qualifications, salary, and expenses to be determined by the Authority. The Harbor Master shall be empowered to make arrests for offenses under the provisions of the regulations as other peace officers are authorized to do.

IV. PENALTY:

Whoever violates any of these rules or regulations or refuses or neglects to obey any lawful order of a Harbor Master given pursuant to these Rules or State statute, or obstructs a Harbor Master in the execution of his duties, commits a civil violation, which may result in the loss of mooring privileges in the Town of Kittery, and shall pay a fine of two hundred dollars ($200.00). Each day the violation continues after notification by the Harbor Master shall be deemed a separate offense. All fines recovered shall accrue to the Town of Kittery.

V. WATER SKIING, SKIN & SCUBA DIVING, AIRCRAFT, SAILBOARDS, JET SKIS, AND WINDSURFING:

A. Vessels Towing Water Skiers and Aquaplanes: There shall be no water skiing in congested moorings, anchorage areas or in speed limited areas. Water skiing shall be governed by the appropriate rules and regulations of the State. Except in connection with water carnivals and exhibitions as authorized by the Port Authority, no such activity may be conducted during the period between one-half (1/2) hour after sunset and one-half (1/2) hour before sunrise. Special water skiing areas may be designated by the Port Authority.

B. Water Ski Jumps: No person shall locate for use on the public waters under the jurisdiction of this Authority a water ski jump without first obtaining the approval of the Port Authority.

C. Skin and Scuba Diving: Skin and Scuba Divers shall be governed by the appropriate rules and regulations of the state.

D. Aircraft: Aircraft shall be governed by the appropriate Rules and Regulations of the Maine Aeronautics Commission, excepting that they shall observe the same mooring and anchorage Rules and Regulations that apply to vessels.

E. Windsurfing: Windsurfing shall be governed by the appropriate Rules and Regulations of the state, and shall be prohibited in all mooring and anchorage areas governed by the Authority.

F. Jet Skis: Jet skis shall be governed by the appropriate rules and regulations of the state and shall be prohibited in all mooring and anchorage areas governed by the Authority.

APPEALS:

VI. Any person aggrieved by any decision of the Harbor Master under these Rules and Regulations may appeal from such decision provided such appeal is taken within seven (7) working days from the date said decision is rendered in writing by the Harbor Master. Any such appeal shall be filed in writing with the Kittery Town Clerk directed to the Port Authority setting forth the reasons for the appeal. The filing shall be considered complete when stamped as received by the Kittery Town Clerk. The Clerk shall forthwith deliver the appeal to the Port Authority. The Port Authority shall hold a hearing within thirty (30) days of receipt by the Town Clerk of such appeal. The appealing party shall be given notice by the Port Authority at least seven (7) days prior to the date set for the hearing on the same. The Port Authority shall hear all relevant evidence presented to it during the course of the hearing by the Harbor Master and appealing party. Either side may present witnesses or evidence in support of their respective positions. The Chairman of the Port Authority shall serve as the presiding officer and shall determine the admissibility of testimony in evidence. This hearing shall be held on an informal basis with strict rules of evidence not applying. After hearing, the Port Authority shall decide the appeal by simple majority of those present and voting and shall issue a decision which may affirm, reverse or modify the decision under review, or may remand the matter to the Harbor Master for further proceedings in accordance with the terms of these Rules and Regulations.

The decision of the Port Authority shall be in writing and shall set forth findings of fact and law. Either party may appeal any decision of the Port Authority directly to the Superior Court pursuant to the Rules and Procedures established for M.R.C.P. 80(B) Appeals.

VII. FEDERAL REGULATIONS:

Nothing herein shall be considered as conflicted with Federal laws applicable to the coastal waters, tidal waters, tidal rivers and harbors of the state.

VIII. EFFECTIVE DATE:

These Rules and Regulations shall take effect on June 1, 1989, and shall remain in effect until altered or repealed by the Port Authority.

APPENDIX E:

NEW HAMPSHIRE PORT AUTHORITY RULES & REGULATIONS

NEW HAMPSHIRE
STATE PORT AUTHORITY

RULES AND REGULATIONS PERTAINING TO HARBORS AND TIDAL WATERS OF THE STATE OF NEW HAMPSHIRE

555 Market St., Portsmouth, N.H.

Effective May 1, 1958
Amended October 17, 1963
Amended August 16, 1971
Amended March 2, 1976
Amended May 4, 1979
Amended May 10, 1985

NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

New Hampshire State Port Authority
555 Market Street
Portsmouth, NH 03801

Statutory Authority: RSA 271-A:4

CHAPTER Por 100 ORGANIZATIONAL RULES

PART Por 101 DEFINITIONS

Por 101.01 Harbormaster. "Harbormaster" shall include an assistant harbormaster.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 101.02 Vessel. "Vessel" shall include boats of all sizes propelled by sail, machinery or hand, scows, dredges, shellfish cars, lobster and crab cars and craft of every kind, except athat nothing herein shall be deemed to apply to vessels operated by governmental agencies.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

PART Por 102 DESCRIPTION OF PORT AUTHORITY

RESERVED

PART Por 103 SCOPE OF RULEMAKING

Por 103.01 Exemptions. Nothing in these rules shall be deemed to apply to vessels operated by governmental agencies.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 103.02 Federal Regulations. Nothing in these rules shall be considered as conflicting with federal laws applicable to the coastal waters and tidal rivers and harbors of the state.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

CHAPTER Por 200 HEARING RULES - RESERVED

CHAPTER Por 300 HARBORS AND TIDAL WATERS

PART Por 301 MOORING ASSIGNMENTS

Por 301.01 Permission of Harbormaster. No mooring shall be set within the tidal waters or harbors of New Hampshire without prior permission of the

harbormaster. Any person desiring to establish a mooring in these harbors, or to relocate an existing mooring, shall apply for permission to the appropriate harbormaster. The harbormaster shall thereupon assign a location, if available, for such mooring, and shall advise the applicant concerning the requirements.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 301.02 Mooring Permit.

(a) A mooring permit in triplicate will be prepared by the port authority office. The permit will list the applicant's name, date issued, type of boat - commercial or pleasure, registration number, name of boat if documented, weight of mooring block, and geographic location.

(b) The permit period shall be for one year from April 1 through March 31 of the following year and be non-transferable except under the conditions outlined in Por 301.07. Payment shall be due no later than April 30. In the event of non-payment of permit fees by that date, the mooring site shall be forfeited and reassigned by the harbormaster.

(c) The mooring permit fee shall be $2.00 per foot, length over all (L.O.A.).

(d) The original of the permit shall be delivered to the applicant, the second copy shall be retained by the port authority office, and the third copy shall be sent to the harbormaster. The permit holder's name and mooring permit number shall be attached to the physical mooring in letters 2" in size for proper identification. Said information also to be on the mooring permit.

(e) Holders of mooring permits shall notify the port authority when the boat for which the permit has been issued has been sold, or otherwise disposed of or the mooring is no longer required. At that time, the permit shall be returned to the port authority. Failure to return the permit shall result in automatic cancellation of the permit.

(f) In the assignment of moorings, the harbormaster shall, insofar as the same may be done consistently with these rules and with due regard for the safety of other vessels and of navigation, give consideration to the choice of the applicant. Owners of the waterfront property shall be given preference in the assignment of a mooring in water adjacent to their property when space is available and conditions permit.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 301.03 Adequate Moorings. All existing moorings, hereinafter to be set, shall be of sufficient size to hold the vessel with which it is used. Mooring lines and chains shall be of sufficient length and strength and

properly rigged to secure such vessel. The harbormaster shall inspect each mooring prior to the time of its placement. Subsequent inspection will be made at the discretion of the harbormaster and by a certified diver who shall report his findings to the harbormaster for evaluation. The harbormaster may at any time inspect any mooring or mooring lines to determine compliance with this rule, provided, however, that except in the case of emergency, he shall notify the owner of his intention to inspect such mooring and request the presence of said owner during the inspection. Any costs of inspection shall be borne by the owner of the mooring.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 301.04 Impeding Navigation and Endangering Other Vessels Prohibited.

(a) All moorings, whether now existing or hereinafter set, shall be so located or relocated that the vessels secured thereby shall not impede navigation within the harbor, nor endanger other vessels moored therein. If the harbormaster shall find that any vessel is so moored as to impede navigation or to endanger other vessels he may require that the owner of the mooring, or of the vessel secured thereby, take such steps, whether by shortening the scope of the mooring lines, or by the use of additional mooring and mooring lines, as will prevent such impeding of navigation or endangering other vessels; or in the alternative, he may order that the mooring be removed and reestablished in the manner prescribed in Por 301.02.

(b) Any person ordered to remove his mooring by the harbormaster, acting under this paragraph, shall remove the same within 48 hours after the receipt of such order; provided, however, that if the harbormaster shall find that an emergency exists requiring immediate action in order to prevent injury to life or damage to property, the harbormaster may cause said mooring, or any vessel attached thereto, to be removed and relocated or remoored. Any expense involved shall be borne by the owner of the mooring or vessel. Any sunken or partly sunken vessel shall be repaired within 48 hours or removed from the mooring.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 301.05 Type of Mooring. Each mooring shall be approved buoys and shall be visible at all times. Spar and log buoys are prohibited at the discretion of the harbormaster. All moorings shall be approved by the harbormaster. All moorings shall show owner's identification, first and second initial and last name and original permit number with no less than 2 inch letters.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 301.06 Moving or Interfering with Moorings. Except by direction of the harbormaster, acting in an emergency, as provided in Por 301.04, no person shall move or interfere with any mooring or vessel in this harbor except with the permission of the owner thereof or the harbormaster.

Source. #2376, eff 6-7-83

Por 301.07 Transferability of Moorings.

(a) Any commercial boat owner may transfer his mooring permit(s) to a new owner in the event of the sale of his business, subject to the submission of documented proof of the commercial nature of the business being sold, including but not limited to verification by the department of revenue administration that business profits tax returns have been filed for the previous 5 years. The new owner of record would be subject to the same requirements in the event of a subsequent sale of the business so acquired.

(b) The port authority board will only consider written transfer requests made by the owner of record delivered to its office at 555 Market Street, Portsmouth, New Hampshire.

Source. #3018, eff 5-10-85

PART Por 302 BUOYS

Por 302.01 Other Than for Mooring. No buoy, other than for mooring a vessel shall be placed in channels. Neither shall such buoys be placed less than 3 vessel lengths from a mooring buoy for that vessel. The harbormaster is hereby authorized, in the interest of public safety, to require and cause the removal of any buoys, including lobster buoys.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

PART Por 303 ANCHORAGE

Por 303.01 Determined by Harbormaster. Vessels shall be anchored in the harbor, in such places or areas as the harbormaster shall direct. The harbormaster may at any time order any vessel at anchor to change position when, in his opinion, such vessel is so anchored as to impede navigation or to endanger other vessels.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 303.02 Removal of Vessels - Penalty. When the master or owner of any vessel lying within the navigable waters of this state, or the person having the same in charge, neglects or refuses to obey the order of any

harbormaster performing his duties under the provisions of this chapter, such harbormaster or his duly appointed agent may cause such vessels to be removed.

Source. #3018, eff 5-10-85

PART Por 304 WHARVES AND LANDINGS

Por 304.01 Public. The public wharves and landings shall be used only for loading and unloading, unless otherwise posted. Vessels shall not remain moored to the wharf or landing for a period longer than reasonably necessary for this purpose. No person shall dive from or swim within 100 feet of said wharves and landings.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 304.02 Private. No vessel shall tie up to or make use of a private wharf or landing place except in case of emergency or with the permission of the owner.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

PART Por 305 OPERATION OF VESSELS

Por 305.01 Speed. Vessels shall be operated at such rate of speed and in such a manner as not to endanger other craft or persons. In special anchorage areas, narrow channels, and congested mooring areas, the speed of all boats shall be reduced to headway speed. For the purpose of these rules, headway speed is the slowest speed that a power boat may be operated and maintain steerage way.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.02 Reckless Operation. No person shall operate upon the waters of this state any vessel so that the lives or safety of others might be endangered.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.03 Operation While Intoxicated. No person shall, while under the influence of intoxicating liquor or any narcotic or habit producing drug, operate any such vessel upon any tidal waters of New Hampshire. The harbormaster is authorized, in the interest of public safety, to cause the arrest of persons in violation of the foregoing. Such violation shall be reported to the coast guard.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.04 Muffling Devices. No boat or outboard motor shall be operated on the tidal waters of this state unless the same is provided with an adequate muffling device, or in case of outboard motors, a muffler intact as supplied by the manufacturer. So-called "racing mufflers" shall not be considered as complying with the law except when the boat or outboard motor is engaged in an authorized race. When sailing vessels are moored or at anchor, ropes and halyards shall be secured in such a fashion that they do not make noise or become obnoxious to area residents. Vessels moored shall not have harpoons or other objects protruding beyond the length of the boat.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.05 Age of Operators Limited. No power boat, other than a boat under sail shall be operated by any person under 12 years of age unless under supervision of an adult present on vessel itself.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.06 Vessels Towing Water Skiers, Windsurfers and Jet Skis.

(a) There shall be no water-skiing in congested mooring areas, special anchorage areas, or in the main ship channels during the movement of vessels. A vessel towing water skiers, windsurfers and jet skis shall keep at least 150 feet distance from other boats, rafts, floats, a line of floats outlining swimming areas, or the shore, except when approaching or leaving orther boats, rafts, floats, or the shore.

(b) No person shall operate a vessel while towing water skiers, or similar devices unless there is present in said vessel in addition to the vessel operator another person 12 years of age or over in a position to observe and assist the person or appurtenance being towed. No person shall be towed on water skis or other appurtenance unless said person is wearing a life jacket or ski belt, except in connection with authorized water carnivals and exhibitions. No person shall bow ride with feet overhanging the side of the boat. The operator of such a vessel shall be held responsible for compliance with the navigating rules for both the vessel and the person or appurtenance being towed.

(c) Except in connection with water carnivals, and exhibitions authorized by the harbormaster, no such activity shall be conducted during the period between 1/2 hour after sunset and 1/2 hour before sunrise.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.07 Water Ski Jumps. No person shall locate for use on the navigable tidal waters of this state, a water ski jump, without first

obtaining the approval of the port authority.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.08 Skin Diving. Any person engaging in diving shall display an international blue and white burgee code flag ALPHA placed at, or near, the point of submergence. While diver is submerged, there shall be an attendent in a boat or on the shore at or near the point of submergence. The diver's flag shall be displayed only when there are divers in the water, and divers shall surface only at the flag location. The flag shall mean that a diver is down, and requests 100 feet of clearance. All boats shall reduce their speed to headway speed when approaching and passing such a flag. However, flying the flag confers no special rights or privileges, and all divers shall continuously maintain utmost caution with respect to surface traffic.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.09 Aircraft. Aircraft shall be governed by the rules of the New Hampshire aeronautics commission, except that aircraft shall observe the same mooring and anchorage rules that apply to vessels.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.10 Disposal of Waste and Refuse. Disposal of waste, refuse, petroleum and tar products, and material of any kind into the harbor and tidal waters of New Hampshire is prohibited and subject to penalty as stated in RSA 271-A:9. Disposal shall be deemed to mean the actual act of disposing of, or leaving any of, the above mentioned material below the high water mark.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 305.11 Abandoned or Derelict Boats, Rafts, Floats, Lobster Cars, Motor Vehicles or Solid Debris.

(a) No person shall permit or cause the abandonment of any boat, raft, float, lobster car, motor vehicle or solid debris or permit same to become derelict upon the tidal waters or abutting shores of same in New Hampshire.

(b) The harbormaster shall order the last owner of record of any such abandoned boat, raft, float, lobster car, motor vehicle or solid debris to remove same within a specified reasonable period of time; and upon his failure to do same shall cause its removal or destruction at the cost of said last owner of record.

Source. #3018, eff 5-10-85

CHAPTER Por 400 HARBORMASTERS

PART Por 401 APPOINTMENT & TERMINATION

Por 401.01 Term. Each harbormaster shall be appointed for a term of one year, his qualifications and salary to be determined by the authority.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 401.02 Termination. A harbormaster's appointment may be rescinded by the authority at any time for failure to properly enforce the law and rules and carry out his duties under RSA 271-A.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

PART Por 402 DUTIES

Por 402.01 Enforcement of Rules. Harbormasters shall enforce the rules pertaining to harbors and tidal waters of New Hampshire as adopted by the authority and cooperate with other governmental agencies in enforcing the regulations. They shall keep such records as the authority may require and shall perform such other duties as the authority may prescribe. They shall assist each other when requested to do so.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 402.02 Warnings. Harbormasters are authorized to issue a written warning for any infraction of the rules which in their judgment, does not warrant the issuance of a summons. Warnings shall be made out in triplicate by the harbormaster. The original shall be delivered to the violator, the second copy sent to the office of the port authority, and the third copy retained by the harbormaster. The warning shall contain the name of the violator, nature of the offense, date and time, special circumstances, and geographic location.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

Por 402.03 Summons. In cases where such action is warranted, a harbormaster may issue a summons upon a person ordering him to appear at court on a day specified. The summons shall be in the form prescribed by the state of New Hampshire. A copy shall be sent to the office of the port authority, and a copy retained by the harbormaster concerned.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

PART Por 403 JURISDICTION

Por 403.01 Areas Defined. The following areas shall be used in determining each harbormaster's jurisdiction:

(a) Portsmouth area. That portion of Portsmouth harbor lying with Little harbor, Sagamore creek, the Piscataqua river (within the boundaries of the state of New Hampshire) to the Atlantic Terminal Sales Corp. and seaward to a line from Odiorne's point to Flashing buoy no. 2, and that portion of tidal waters lying within the boundaries of the state of New Hampshire.

(b) Great Bay and Little Bay areas. All navigable tidal waters within the boundaries of the state of New Hampshire from the Atlantic Terminal Sales Corp. to waters of Great Bay adjacent to the towns of Dover, Durham, Newmarket, Newfields, Exeter, Strantham, Greenland, and Newington.

(c) Rye area. Rye harbor, including a channel 100 feet in width from the entrance of Rye harbor seaward to Whistle buoy 1B, and that portion of tidal waters lying within the boundaries of the state of New Hampshire.

(d) Gosport Harbor - Isles of Shoals. That portion of Gosport Harbor within the boundaries of New Hampshire.

(e) Hampton area. Hampton harbor, including the waters of Hampton river and seaward from the Hampton-Seabrook bridge to an area from Gong buoy no. 4 to Old Cellar rock to Red Beacon on the north jetty at the entrance to Hampton harbor, and that portion of tidal waters lying within the boundaries of the state of New Hampshire.

(f) Seabrook area. Seabrook harbor, including the waters of the Blackwater river, and that portion of tidal waters lying within the boundaries of the state of New Hampshire.

Source. #2376, eff 6-7-83; ss by #3018, eff 5-10-85

APPENDIX

STATUTORY DUTIES OF HARBORMASTERS

RSA 271-A:8 Harbor Masters.

The Harbormasters appointed by the Authority shall have authority, under the supervision of the Authority, to oversee the harbor for which he was appointed master, to preserve and regulate navigation within said waters, to assign moorings, require the same to be kept in safe condition, to require the removal of vessels if necessity or an emergency arises, and to inquire into and prosecute all offenses occurring within his jurisdiction and to perform such duties and enforce such regulations as the Authority shall prescribe.

Source. 1957, 262:1, eff. 9/1/57

RSA 271-A:8-a Power of Arrest.

The Harbormasters appointed by the Authority shall have authority to make arrests for offenses, under the provisions of this chapter, as other peace officers are authorized to do.

Source. 1959, 138:1, eff. 6/4/59

RSA 271-A:9 Penalty.

Whoever violates any of the rules or regulations of the Authority promulgated under the authority of RSA 271-A, or refuses or neglects to obey the lawful and reasonable orders of a Harbormaster, or resists him in the execution of his duties, shall be guilty of a misdemeanor. All fines collected under the provisions of this section shall be forwarded to the Port Authority.

Source. 1957, 262:1. 1973, 531:93.
1975, 49:2, eff. 5/26/75

Feb- 89

NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

New Hampshire State Port Authority
555 Market Street
Portsmouth, N. H. 03801

Statutory Authority: RSA 271-A:4

CHAPTER por 100 ORGANIZATIONAL RULES

PART Por 101 DEFINITIONS

Por 101.01 "Harbormaster", As defined under RSA 271-A:3 shall include an assistant harbormaster, as well as the harbormaster himself.

Por 101.02 "Shellfish Cars", as used in RSA 271-A:10, shall include lobster and crab cars.

Por 101.03 "Mooring" means any structure or apparatus, including floats, rafts, and their attached cables and anchors whose purpose is to provide for securing a vessel (a) to the bottom, within the Port's harbors and navigable waters

Por 101.04 "Navigable Tidal Rivers" "Navigable tidal rivers", as used in RSA 271-A:2-I shall includes any body of water subject to tides.

PART Por 102 DESCRIPTION OF PORT AUTHORITY

RESERVED

PART Por 103 SCOPE OF RULEMAKING

Por 103.01 Exemptions Nothing in these rules shall be deemed to apply to vessels operated by governmental agencies.

Por 103.02 Federal Regulations Nothing in these rules shall be considered as conflicting with federal laws applicable to the coastal waters and tidal rivers and harbors of the state.

CHAPTER Por 200 HEARING RULES RESERVED

CHAPTER Por 300 HARBORS AND TIDAL WATERS

PART Por 301 MOORING ASSIGNMENTS

Por 301.01 Permission of Harbormaster No mooring shall be placed within the tidal waters or harbors of New Hampshire without prior permission of the harbormaster. Any person desiring to establish a mooring in these harbors, or to relocate an existing mooring, shall apply for permission to the harbormaster having jurisdiction. The harbormaster shall assign a location, if available, for such mooring, and shall advise the applicant concerning the requirements of these rules.

(a) All vessels moored in New Hampshire tidal waters shall be assessed an annual fee as follows:

1. A rate of $3.00 per foot of length overal (LOA) for all individual privately owned moorings, with a minimum charge of $24.00 excluding any costs incurred under 301.03 (b).

2. A rate of $5.00 per foot of length overal (LOA) for each commercially leased or rented moorings at marinas and Yacht Clubs.

(b) The purpose of said mooring fee is to reimburse the State of New Hampshire for the costs and services provided to vessels in New Hampshire tidal waters by the New Hampshire State Port Authority office.

(c) A mooring permit shall be prepared in triplicate by the Port Authority office. The permit shall list the applicant's name, date issued, type of vessel (commercial or pleasure), registration number, name of boat if documented, weight of mooring block, if applicable, and location.

(d) The permit period shall be for one year from April 1 through March 31 of the following year and be non-assignable and shall not be transferred except under the conditions outlined in Por 301.07. Payment for the permit shall be made no later than May 30. In the event of non-payment of permit fees by that date, the mooring site shall be forfeited and reassigned by the harbormaster. Failure to renew the mooring permit shall result in non-renewal.

(e) The first copy of the permit shall be delivered to the applicant, the second copy shall be retained by the Port Authority office, and the third copy shall be sent to the harbormaster. The permit holder's name and mooring permit number shall be attached to the mooring buoy itself in letters 2" in size for proper identification.The permit holder's name and mooring permit number shall also be on the mooring permit.

(f) Holders of mooring permits shall notify the Port Authority when the vessel for which the permit has been issued has been sold, or otherwise disposed of or the mooring is no longer required, at which time, the permit shall be returned to the Port Authority. Failure to return the permit shall result in non-renewal of the permit. No person other than the holder of a permit for a specific mooring may use that mooring.

(g) In the assignment of moorings, the harbormaster shall consider the applicant's preference with due regard for adequate space and depth of water, if this may be done consistently with these rules and with due regard for the safety of other vessels and of navigation. Owners of waterfront property, upon application for a mooring permit shall be given preference in the assignment of a mooring in water adjacent to their property when space is available and with due regard for safety, navigation, space and water depth.

(h) All vessels secured at moorings shall have the approved current harbormaster's sticker attached.

(i) No barrel or tire mooring floats shall be allowed; only polystyrene form blocks or ABS type plastic buoys shall be allowed; all others shall be removed by the harbormaster.

(j) The Port Authority shall keep a chart available for public inspection which clearly indicates the mooring areas permitted in the tidal waters of New Hampshire. Applicants neither issued nor denied a permit shall be placed on a waiting list according to their date of application. Applicants whose names are placed on a waiting list for a specific area shall be assessed an annual fee of five dollars ($5.00) for each waiting list their names appear on.

Por 301.03 Adequate Moorings

(a) All existing moorings shall meet the minimum size requirements established in this rule. When considering the minimum size for moorings the harbormaster shall take into account the following factors: storms, winds, waves, tides, and currents. The minimum size mooring shall be as stated in this rule unless the harbormaster, taking into account the stated factors, determines that a different size mooring is necessary for the safety of the vessel.

(b) The harbormaster shall inspect and approve each mooring prior to the time of its placement. Subsequent inspection shall be made when the harbormaster determines that the deterioration of the mooring hardware requires such and by a certified diver, who shall report his findings to the harbormaster for evaluation of the deterioration. The harbormaster may at that time examine any mooring or mooring line to determine compliance with this rule, provided however, that except in the case of emergency, he shall notify the owner of his intention to inspect such mooring and request the presence of said owner during the inspection.

(c) Each mooring shall utilize buoys which meet the requirements of Por 301.02 (h), which shall be visable at all times. Spar and log buoys shall be prohibited.

(d) Minimum standards for mooring tackle to secure vessels in tidal waters shall be as follows:

(e) Proper mooring tackle shall be used to secure vessels adequately at their moorings. Storms, wind, waves, tides, currents and wash shall be considered when selecting appropriate hardware.

Boat Length Overall	Block Weight	Diameter Chain	Pennant Nylon
-FOR MOTOR BOATS-	LBS		
less than 12'	800	½"	5/16"
13'-18'	1000	½"	7/16"
19'-25'	4500	½"	½"
26'-35'	4500	½"	5/8"
36'-45'	9000	3/4"	3/4"
46'-55'	10000	9/16"	1"
-FOR RACING TYPE SAILBOATS-			
up to 21'	4000	½"	7/16"
22'-25'	4500	½"	1/2"
26'-30'	4500	½"	1/2"
31'-34'	4500	½"	9/16"
35'-41'	8000	3/4"	3/4"
42'-52'	9700	3/4"	3/4"
53'-59'	10000	3/4"	1"
60'-65'	10000+	1"	1"

Boat Length Overall	Block Weight	Diameter Chain	Pennant Nylon
-FOR CRUISING TYPE SAILBOATS-			
up to 21'	4000	½"	7/8"
22'-25'	4500	½"	3/4"
26'-35'	5000	½"	1"
36'-45'	8000	3/4"	1"
46'-55'	9000	3/4"	1"

(f) Mooring pennants shall have a thimble and shall be spliced where rope and chain connect; pennant shall not be over 12'. Pennants shall have chafing gear where pennant passes through the chocks.

(g) All chains, shackles, eyebolts and all related hardware shall be hot-dipped galvanized; shackles shall be wired to prevent the pin from backing out.

(h) A waiver for adjustments to these minimum standards may be granted by the Port Authority, subject to specific conditions in addition to these rules which shall be considered at the next regularly scheduled Port Authority Board meeting. An applicant shall request in writing to the harbormaster that a waiver be granted based on local conditions for a specific site.

Por 301.04 Impeding Navigation and Endangering Other Vessels Prohibited

(a) All moorings, whether now existing or hereinafter set, shall be so located or relocated that the vessels secured thereby shall not impede navigation within the harbor, nor endanger other vessels moored therein. If the harbormaster shall find that any vessel is so moored as to impede navigation or to endanger other vessels he may require that the owner of the mooring, or of the vessel secured thereby, take such steps, whether by shortening the scope of the mooring lines, or by the use of an additional mooring and mooring lines, as will prevent the impeding of navigation or endangering other vessels; or in the alternative, he may order that the mooring be removed and reestablished in the manner prescribed in Por 301.02.

(b) Any person ordered to remove his mooring by the harbormaster, acting under this paragraph, shall remove the same within 48 hours after the receipt of such order; provided, however, that if the harbormaster shall find that an emergency exists requiring immediate action in order to prevent injury to life or damage to property, the harbormaster may cause said mooring, or any vessel attached thereto to be removed and relocated or remoored elsewhere. Any sunken or partly sunken vessel shall be repaired within 48 hours or it shall be removed from the mooring when the harbormaster determines that it poses a threat or hazard to navigation or safety.

Por 301.05 RESERVED

APPENDIX F:

MOORING DEMAND PROJECTIONS

Wallace, Floyd, Associates Inc.

Architecture
Landscape architecture
Planning
Urban design

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Telephone
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TO: Carole Schlessinger

FROM: Lynne Seeley

DATE: 2 April 1990

RE: Boating Projections - Kittery Harbor Plan

Boating projections were developed for use in the development of a mooring plan for Kittery Harbor. The projections estimate the number of moorings needed in 1995 for different boat size categories.

Three different projections were developed to allow comparison; the average of the three was used for planning purposes. Projections were developed for boat registrations, projected moorings were then calculated as a percent of total registrations.

The different projections are based on different projected registration growth figures: one from the National Marine Manufacturers Association; one from the Maine Department of Parks and Recreation; and the third from a formula based on boats per person in Kittery. The projected mooring figures are based on a 76 percent ratio of boats moored to boats registered; this is the current ratio in Kittery. The following details the steps taken in developing the projections.

<u>Existing Conditions (1989)</u>

Total boats registered	730
Total boats moored	367
Total boats on waiting list	185
Boats moored & waiting/registered	552/730
Percent boats moored & waiting/registered	76%

Future Projections

1. National Marine Manufacturers Assoc.

   Based on a 3.81% yearly growth in registrations:
   - o 914 registered boats in Kittery in 1995
   - o 695 moorings needed in 1995 (914 x .76)

2. Maine Dept. Parks and Recreation

   Based on a 2.43% yearly growth in registrations:
   - o 844 registered boats in Kittery in 1995
   - o 641 moorings needed in 1995 (844 x .76)

3. Kittery Boats/People

   Based on 15 people per boat in 1989 (10,854 (pop.)/730) and 11,754 projected 1995 population (based on Comprehensive Plan growth figures):
   - o 784 registered boats in Kittery in 1995 (11,754/15)
   - o 596 moorings needed in 1995 (784 x .76)

After developing these projections, projections of moorings by boat size were developed. These projections were based on the current percentages of boats moored and on the waiting list in the various size categories. According to the Kittery Harbormaster it is reasonable to assume that the distribution of boats of different sizes will remain about the same over the next five years.

The following table presents the mooring projections by size categories for the three projections presented above. In addition, the table presents the average figures which were used for planning purposes.

TABLE 1: 1995 MOORING PROJECTIONS

Boat Size	Percent of moored & waiting*	Total Moorings **(1) 695	(2) 641	(3) 596	AVG
7-10	2%	14	13	12	13
11-15	10%	70	64	60	65
16-20	20%	139	128	119	129
21-25	20%	139	128	119	129
26-30	24%	167	154	143	155
31-35	1%	76	71	66	71
36-40	10%	70	64	60	65
40+	2%	14	13	12	13

(1) Based on National Marine Mfgs. figures (3.81% growth) (914 registered boats)

(2) Based on Maine Registration figures (2.43% growth) (844 registered boats)

(3) Based on Kittery population/registration figures (1 boat per 15 people) (784 registered boats)

* Assumes % of boats in each category will be the same in 1995 as it was in 1989. Percent of boats in each category is based on mooring list and waiting list.

** Assumes # moorings represents 76% of boats registered, based on the current ratio.

APPENDIX G:

PROPOSED MOORING PLAN

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I INTRODUCTION

Pepperrell Cove site is situated at the entrance to historic Portsmouth Harbor which straddles Maine and New Hampshire. The abutting shore front is part of York County, Maine, which has experienced unprecedented growth in the last decade. This regional growth has increased demand for mooring space for a growing number of coastal craft. The site location is shown on Figure 2.

An aerial photograph of Pepperrell Cove in the summer season reveals an indiscriminate pattern to the boats that are currently moored. Reports have been made of boat collisions during certain wind and tidal conditions. Channel approach to the town dock and Chauncey Creek is not clearly defined and some competition would appear to exist between mooring space allocation and lobster traps.

This mooring plan studies available space at Pepperrell Cove and makes recommendations for optimization of existing space to accommodate a recreational and fishing fleet. It is recognized, although not addressed in this section of the Report, that shoreside facility improvement, particularly in the area of parking, will be required to maximize efficient use of present mooring resources.

A 'Mooring Plan' is a guide to water resource use. The recommendations outlined in this study should be subject to periodic reviews which consider Kittery management practices, environmental impact, trends or changes in fleet characteristics (i.e. power to sail, pleasure to commercial), impact on local residences and businesses, additional or reduced space availability and waterfront use changes in the estuary.

Based on a study of site wind, wave and tidal exposure, and an on-site review with former Harbor Master Robert Pomella, Mooring Plans have been prepared for Pepperrell Cove to relieve existing problems associated with overcrowding and to develop a program of mooring management.

Pepperrell Cove is currently near capacity (existing moorings number 202). In order to accommodate additional moorings, the following mooring management practices are recommended:

1. Establish a grid system for mooring placement.
2. Begin standardizing ground tackle for similar type boats.
3. Group moorings in relation to boat type and behavior of boat at the mooring.

With the implementation of the above recommendations it is estimated that the number of moorings could be increased to approximately 216 (see Figure 5). Mooring Plan A does not serve to reduce the waiting list significantly (166 boats on waiting list 10/4/89).

The existing mooring practice in Pepperrell Cove is to use a single point mooring system (i.e. single block or anchor). A single point mooring system also forms the basis for Mooring Plan A. An alternative mooring system such as Dual Mooring Blocks or Multiple Boat Mooring Chain

could be introduced in a designated area of Pepperrell Cove in order to create higher density space allocation. Realistically, this system is best introduced by the users themselves. A class of sailboat or similar motor boats would lend themselves to high density moorings provided the owners cooperated as a group to install the mooring system.

Additional moorings could also be achieved by dredging the shallows south of Gooseberry Island or at the entrance to Chauncey Creek. With current environmental legislation, dredging is not perceived as a viable alternative. Further studies to explore dredging possibilities would require a detailed hydrogeological and environmental impact analysis which is outside the scope of this study.

II GEOGRAPHICAL SETTING OF PEPPERRELL COVE

A. SITE DESCRIPTION

It is appropriate in the evaluation of mooring plan alternatives to address the nautical characteristics of the site. Pepperrell Cove is strategically placed at the entrance of Portsmouth Harbor. Because of its relatively uniform depth of 12 feet at low water, mud bottom (good anchor holding characteristics) and moderate protection, one can speculate that Pepperrell Cove traditionally provided a temporary anchorage for sailing vessels awaiting a favorable tide prior to transit up the Piscataqua River to a more sheltered berth in the commercial dock area.

Sea conditions in Pepperrell Cove are described in the following extract from *A Cruising Guide To The New England Coast*, 1983.

> *Pepperrell Cove. This is an open bight in the northeast corner of the harbor opposite Fort Constitution. There is ample depth here, but it is crowded with moorings. If you want to lie here, edge up to the float and search out Frank Frisbee at the store. If there is a vacant mooring, he will know of it. Do not lie on the front of the float except in very quiet weather. The roll is devastating. Lie bow to the southward on the west end. There is water enough to allow you to swing around and come alongside. On ordinary nights this anchorage is safe enough, but uneasy. Most of the moored yachts are small boats with aluminum masts and wire halyards. When they all get rolling and jingling their halyards more or less in concert, the effect is far from soporific.*
>
> *In a southerly or easterly gale, Pepperrell Cove is impossible. Otherwise it is an acceptable, if not particularly desirable, anchorage.*

While the above passage is primarily directed towards yachtsmen in transit, it does provide a graphic description of the southerly exposure and the lack of protection from sea swell generated by winds from the south quadrant.

B. WAVE, TIDAL STREAM, AND WIND EXPOSURE

No measured data for the tidal current effects in Pepperrell Cove were collected. However, an Army Corps of Engineers 'soundings' plan together with local knowledge, indicate an easterly flood into and a westerly ebb out of Chauncey Creek. The mean range of tide in Portsmouth Harbor is 8.1 feet. This range together with estuarian flow characteristics of Portsmouth Harbor make tidal stream action unpredictable. Figure 2 indicates the direction and relative magnitude of current flow. From a mooring plan perspective it is important to note that the "wind opposing tidal stream" condition does exist in Pepperrell Cove, which makes shared mooring floats, or reduced mooring hardware (weight and scope), not feasible.

Figure 3 correlates wind direction with the degree of protection afforded by the geographical location of Pepperrell Cove and surrounding land mass. The rocky shoreline is an indication of significant wave action induced by the summer prevailing southwest wind flow. Winter protection from "northeasterlies" to the small number of resident fishing vessels is good. Pepperrell Cove would not provide a safe anchorage for the unpredictable tropical storms that occasionally reach the Maine coast. The harbor master should advise boat owners to have a contingency plan for vessel protection during the hurricane season.

III MOORING DEMAND

Table 1 indicates the number of boat users that currently have moorings and those that are on the waiting list for a number of anchorages under jurisdiction by the Town of Kittery.

TABLE 1
MOORING DEMAND FOR KITTERY ANCHORAGES

Boat Length Range	(Ft.) Max.	Boats Moored & Waiting #Boats	% Total
7-10	10	13	2
11-15	15	65	10
16-20	20	129	20
21-25	25	129	20
26-30	30	155	24
31-35	35	71	11
36-40	40	65	10
40+	45	13	2
TOTAL		640	100

Table 2 indicates the number of boat users that have existing moorings at Pepperrell Cove and the number of boat owners currently on the waiting list.

An inspection of these Tables indicates that Pepperrell Cove is the main anchorage for the Town of Kittery, attracting approximately 60% of potential boat users. In addition, Pepperrell Cove attracts a large proportion of boats in the 21' - 35' size range, probably reflecting the popular location for sailboats adjacent to the seaward channel away from the tidal stream affects of the upper harbor area. This hypothesis is reinforced by Table 3 which indicates size and type characteristics of boats on the waiting list for Pepperrell Cove.

Table 3 illustrates that a small percentage of the existing fleet at Pepperrell Cove is commercial fishermen. As these professionals are frequent users, and potentially mooring year round, they should be given priority in the mooring plan layout.

Temporary demands will be placed on mooring spaces by visiting yachts approaching for fuel and services and an overnight berth. Pepperrell Cove Yacht Club, situated on shore, may host annual events which require temporary space allocation. Mooring management may allow these space to be filled by normal attrition during the season created by boatowner vacation trips.

TABLE 2
MOORING DEMAND FOR PEPPERRELL COVE

BOAT LENGTH RANGE	(FT) MAX.	EXISTING BOATS # BOATS	EXISTING BOATS % TOTAL	BOATS ON WAITING LIST #BOATS	BOATS ON WAITING LIST % BOATS	BOATS MOORED & WAITING # BOATS	BOATS MOORED & WAITING # TOTAL
7-10	10	1	0	1	1	2	1
11-15	15	14	7	8	5	22	6
16-20	20	37	18	24	14	61	17
21-25	25	41	20	43	26	84	23
26-30	30	51	25	63	38	114	31
31-35	35	30	15	14	8	44	12
36-40	40	19	9	9	5	28	8
40+	45	9	4	4	2	13	4
TOTAL		202	100	166	100	368	100

TABLE 3
SIZE AND TYPE CHARACTERISTICS FOR BOATS ON WAITING LIST
(FROM MOORING WAITING LIST 10/4/89)

BOAT LENGTH (FT)	SAIL	POWER	LOBSTER BOAT	SKIFF	OUTBOARD	DORY	TOTAL PER LENGTH	% TOTAL
7-10		1					1	1
11-15	2	1		1	4		8	5
16-20	13	4	1		4	2	24	14
21-25	32	9	1		1		43	26
26-30	59	3	1				63	38
31-35	11	3					14	8
36-40	8		1				9	5
40+	2	2					4	2
TOTAL	127	23	4	1	9	2	166	
% TOTAL	77	14	2	1	5	1	100	100

IV MOORING LAYOUT ALTERNATIVES

A. NAVIGATION/SPACE ALLOCATION

The first priority of any mooring plan is navigation. The main harbor channel approach from seaward is marked with a shoreside transit west of the town pier. This transit is bisected by another transit to guide vessels into Portsmouth Harbor. Red Nun #4 marks the passage clear of Fishing Island. Both mooring plan recommendations identify a 50' wide channel approach to the town dock. This channel approach lines up with the intersection of the two main harbor channel transits, providing a direct navigational approach for vessels not familiar with the area or for use during the hours of darkness. A 50' wide channel approach to Chauncey Creek which leaves Red Nun#4 to starboard has also been included.

Space allocation has been shown on Figure 4 based on the following parameters:

1. Depth of Water
2. Protection from Weather
3. Mooring Allocation by Type of Vessel
4. Mooring Allocation by User, i.e., Fishermen
5. Space for Maneuvering Around Town Dock

It should be noted that the main channel transit should be kept clear of obstructions. Placement of motor boats rather than sail boats in this area requires review with the Port Authority.

B. MOORING LAYOUTS

Two mooring plan layouts have been prepared based on single mooring point tackle for each vessel. Mooring tackle is discussed in Section V. The mooring circle space requirements for length of vessel are identified in Tables 2 - 4 for existing boats and those on the waiting list. Two methods of determining the requirements for mooring area were used, based on the following variables and recommendations identified in Figures 7 & 8.

1. Depth of High Water
2. Height of Bow
3. Length of Boat

Mooring Plan A (see Figure 5)

This plan optimizes available space with a variable grid system. The plan provides moorings for 216 boats in 5 anchorage locations. The variable grid will require more work to initially set up, but will optimize the available mooring space.

Mooring Plan B (see Figure 6)

This plan is not as efficient (205 moorings) as Plan A but has a more uniform grid system facilitating flexibility and management. This

plan would be easiest to implement in the short term with a long term transition to Mooring Plan A which requires careful allocation of space in the 75' diameter mooring circle locations. In the southern section of the West Anchorage mooring water depths have been limited to MLW=18 ft., reflecting the 100' grid system adopted. Mooring Plan A extends moorings into deeper water be increasing grid spacing.

Both mooring plan layouts have several characteristics in common which serve to dictate mooring density constraints. These are identified below:

1. Approach Channels - space has been allocated for clear channel approach to the town dock and Chauncey Creek. Although width of channel is indicated as fifty feet, actual channel width will fluctuate from a minimum of fifty feet and wider, depending on the response of vessels adjacent to the channel to wind and sea conditions.

2. Depth of water - Depths indicated in Figures 5 and 6 reflect chart datum depths in feet at Mean Low Water (MLW). A reduction in this depth will only occur during occasional astronomical occurrences as predicted by tide tables. Generally, moorings are placed in a range of MLW=6 feet to MLW=24 feet which corresponds to high tide depths of approximately 15 feet and 33 feet respectively. A shallower placement of mooring tackle would increase the risk of "grounding" at low water and a deeper placement substantially increases mooring tackle requirements (refer to Section V).

3. Exposure - In maximizing the usable space in Pepperrell Cove, the degree of mooring protection was to some degree compromised by an attempt to optimize mooring capacity. It should be recognized that degree of protection from wind and wave action varies throughout the anchorage. For example, in Figure 5 the "Southeast" Anchorage is more protected than the "Southwest" Anchorage. Boat users will be most vulnerable to sea conditions when transiting by dinghy between the town dock and their vessels and must be outfitted accordingly.

4. Mooring Circle Clearance - With the exception of the 150' diameter moorings for larger vessels in deeper water, mooring circle lines of influence do not overlap (see Figures 5 and 6). In the case of the 150' diameter mooring circle allocation, an overlap of mooring circles has been recommended to maximize space allocation. These areas correspond to deeper water and increased anchorage exposure where wind and sea conditions are less influenced by Chauncey Creek flow and land mass generated wind disturbances, thereby exhibiting more uniform boat behavior.

5. Grid Spacing - Section V identifies mooring circle size requirements based on vessel size and depth of water. In order to provide flexibility in initial and future mooring allocation, standard "grid spacing" of 75', 100' and 150' were chosen. This

will also provide some buffer to account for the owner's trend of increasing the size of his/her boat.

6. Lobster Trap Placement - Mooring plans were generated without consideration for lobster trap placement. No policy is currently established by the Town of Kittery regarding the placement of traps in the anchorage area. Space allocations for traps will impact the number of available mooring spaces.

C. MOORING OPTIONS

Both mooring options presented are for single point moorings. The exposure conditions rule out any floating dock arrangements.

If any user groups can be identified (i.e. yacht club, fishermen), then mooring density could be increased with a dual or multipoint anchor system or communal chain mooring. There may be incentive for this, particularly by waiting list members who could speed up mooring allocation. A questionnaire could be made part of the application. Any group, however, would have to accept liability for the mooring arrangement (as for single point) and would have to have similar vessels. The Harbor Master could allocate space for these mooring configurations in a designated area.

V MOORING SCOPE AND HARDWARE RECOMMENDATIONS

In order for the mooring plan to function effectively, minimum standards for mooring tackle should be established to ensure similar "mooring behavior" of mooring groups.

Sources for mooring tackle recommendations are presented below by their applicability to Pepperrell Cove:

A. Mooring Circle Diameter Determination

1. *Mooring Plan Handbook,* (Reference 1).

   Figure 7 illustrates the recommendations for length of chain and pennant for depth of water. When applied to the depth of water and size of vessel a mooring circle diameter or "circle of influence" is calculated. This information is used to determine the grid spacing on the mooring plans.

2. *Piloting, Seamanship & Handling,* (Reference 4)

   Figure 8 identifies recommendations for scope based on heavy chain, light chain and a pennant for depth of water.

TABLE 4
MOORING CIRCLE REQUIREMENTS FOR PEPPERRELL COVE

BOAT LENGTH RANGE	MAX.	# OF BOATS EXISTING	WAITING	MAX. DEPTH (FT) LW	H W	BOW HT. FT	MOORING CIRCLE DIA. SEE NOTE 1	SEE NOTE 2
7-10	10	1	1	10	19	1	78	73
11-15	15	14	8	10	19	2	82	81
16-20	20	37	24	12	21	3	94	95
21-25	25	41	43	12	21	4	99	103
26-30	30	51	63	12	21	5	285	111
31-35	35	30	14	15	24	6	119	129
36-40	40	19	9	18	27	7	134	146
40+	45	9	4	18	27	8	138	154

Notes:
1. Mooring circle diameter based on Figure 7 recommendations.
2. Mooring circle diameter based on Figure 8 recommendations.

Table 4 outlines the Mooring Circle diameters generated for boat length and depth of water criteria based on the two references above. This information has been used to determine the grid spacing on the mooring plans presented.

B. Ground Tackle Recommendations

1. *Mooring Plan Handbook,* (Reference 1)

Chapter 5 - Mooring Standards of this reference is appended and provides guidance for size of tackle required relative to size of vessel and expected wind speed. A minimum expected wind speed of 60 knots should be used to determine size of mooring tackle to reflect storm conditions in Pepperrell Cove.

2. *Piloting, Seamanship and Handling,* (Reference 4)

Ground tackle recommendations from this reference are presented in Table 5.

TABLE 5
SUGGESTIONS FOR PERMANENT YACHT MOORINGS
(FOR WIND VELOCITIES TO 75 MPH)

Boat Length Overall	Mushroom Anchor (Min. Wt.)	Heavy Chain		Light Chain		Pennant				Total Scope (Chocks to Mushroom)
		Length	Diameter	Length	Diameter	Length (Minim.)	Diameter			
							Manila	Nylon	Stainless Steel	
—FOR MOTOR BOATS—										
25	225	30	7/8	20	3/8	20	1	7/8	9/32	70
35	300	35	1	20	7/16	20	1-1/4	1	11/32	75
45	400	40	1	20	1/2	20	1-1/2	1-1/4	3/8	80
55	500	50	1	20	9/16	20	2	1-1/2	7/16	90
—FOR RACING TYPE SAILBOATS—										
25	125	30	5/8	20	5/16	20	1	7/8	9/32	70
35	200	30	3/4	20	3/8	20	1-1/4	1	11/32	70
45	325	35	1	20	7/16	20	1-1/2	1-1/4	3/8	75
55	450	45	1	20	9/16	20	2	1-1/2	7/16	85
—FOR CRUISING TYPE SAILBOATS—										
25	175	30	3/4	20	5/16	20	1	7/8	9/32	70
35	250	30	1	20	3/8	20	1-1/4	1	11/32	70
45	400	40	1	20	7/16	20	1-1/2	1-1/4	3/8	80
55	550	55	1	20	9/16	20	2	1-1/2	7/16	95

NOTE:—Heavy chain to be shackled to mushroom anchor, light chain shackled to end of heavy chain.
With stainless steel pennants, use special bow chocks and mooring bitts to eliminate sharp bends.

REFERENCES

1. *Mooring Plan Handbook*, Department of Economic and Community Development, Office of Comprehensive Planning, October 1989.

2. 12-Foot Anchorage Conditions Survey Plan, Drawing No. 1968-D-15-1 Department of the Army, New England Division.

3. *A Cruising Guide to the New England Coast*, Duncan & Ware, 1983.

4. *Piloting, Seamanship and Handling*, Chapman, 1972.

5. *United States Coast Pilot, Atlantic Coast: Eastport to Cape Cod*, 1989.

Reprinted from *Mooring Plan Handbook*, Department of Economic and Community Development, Office of Comprehensive Planning, October 1989.

CHAPTER 5 - MOORING STANDARDS

Loads placed upon moorings vary considerably depending upon the type of vessel at the mooring. For example, under a gale wind (30-40 MPH), a 25-foot open boat with no cabin will exert a pull of about 540 pounds on its mooring. Under the same conditions, a 25-foot cabin boat will exert a force of about 700 pounds. Boats which lay calmly with their bow into the wind exert less force on their moorings than those which constantly sail around their mooring. Consequently, it is as impossible to say that all boats of equal length require the same size mooring, as it is to say that all men of the same height should wear the same shoe size.

A boat owner should have some confidence that, during storm conditions, other boats will not break loose from their moorings and damage his vessel. For this reason, it is advisable for a community to set some minimum standards. However, because mooring loads are so variable, such standards cannot be applied to all boats, nor can the community be held liable for damage inflicted if a minimum standard mooring fails. A parallel to this is state inspection of automobiles. The vehicle may pass inspection, but the state is not held liable if at a time following inspection, the car or truck is involved in an accident.

TACKLE DESIGN

The American Boat and Yacht Council recommends the following design loads as standards for mooring design:

TABLE III

Ground Tackle Design Load

LENGTH OF BOAT	BEAM	42 KNOT WIND	60 KNOT WIND
20'	7'	720 lbs	1,440 lbs
25'	8'	980 lbs	1,960 lbs
30'	9'	1,400 lbs	2,800 lbs
35'	10'	1,800 lbs	3,600 lbs
40'	11'	2,400 lbs	4,800 lbs

(Use length or beam whichever produces the largest load value.)

CHAIN CHARACTERISTICS

It is recommended that all chain used for moorings be strong enough to resist the loads caused by a 60-knot wind. Chain comes in a variety of strengths, depending upon the type of link and alloy of steel used, but ordinary chain can be expected to have the following characteristics:

TABLE IV

Chain Characteristics

SIZE	WEIGHT/FOOT	WORKING LIMIT*
1/4"	.75	1,325 lbs
5/16"	1.14	1,980 lbs
3/8"	1.64	2,750 lbs
1/2"	2.92	4,750 lbs
5/8"	4.43	7,250 lbs

*NOTE: Working limits are considerably below breaking strength of chain to allow for corrosion as well as safety factor. Several authorities recommend using 20% of the breaking strengths as the working limit.

ROPE

Twisted 3 strand nylon rope is recommended for any rope used on a mooring. It is not only rot resistant and does not deteriorate appreciably in salt water, but it has considerable capacity to stretch and act as a shock absorber under shock loads. Under day-to-day loading, nylon rope should not be stressed more than 11 percent of its breaking strength according to cordage manufacturer's recommendations. However, to obtain the advantage of the stretch for shock loading, it should be stressed to 25 percent of its breaking strength. (When stressed less than 25 percent, the rope does not stretch, failing to provide any shock loading advantage.) Under ultimate loading, it should not be stressed to more than 50 percent of its breaking strength simply because of the loss in strength at knots and splices.

Taking into consideration the characteristics of nylon rope, it is recommended that moorings be designed so that the loads produced by a 60-knot wind should not exceed 25 percent of the

breaking strength of the rope. A table for the characteristics and strengths of 3 strand nylon rope is shown below:

TABLE V

Characteristics and Strengths
Twisted 3 Strand Nylon Rope

Dia. of Rope inches	Mms.*	Weight lbs/100 ft	Average Breaking test - lbs	Breaking Test 11% (lbs)	25% (lbs)
3/8	9	3.5	3,700	410 lbs	925
7/16	10	5.0	5,000	550	1,250
1/2	12	6.5	6,400	700	1,600
9/16	14	8.3	8,000	880	2,000
5/8	16	10.5	10,400	1,140	2,600
3/4	18	14.5	14,200	1,560	3,550
7/8	22	20.0	10,000	2,200	5,000
1	25	26.0	25,000	2,750	6,250

* Closest metric rope size

MOORING BLOCK

The size and weight of the mooring block or anchor used to secure the mooring chain to the bottom is also a variable factor. By providing scope, the weight is not a direct lift but has a horizontal factor as well when the block drags across the bottom and digs into the harbor floor. The softer the bottom, the more the block digs in and the stronger the mooring. All anchors, of course, take advantage of this digging characteristic.

Scope is the ratio of the length of the mooring chain and/or rope to the vertical distance from the anchor or mooring block to its highest point. In Figure II, the mooring chain length is twice the vertical distance from the harbor floor to the mooring float at high water - a scope of 2-to-1. With a pennant 2 1/2 times the height of the bow of the boat, the total length of the chain plus the pennant is 68 feet, or 2.06 times the total distance from harbor floor to the bow of the boat. The scope for the entire mooring is 2.06-to-1.

Weight alone is the deciding factor when sizing the block because a mooring block does not have sharp edges designed to

bite into the harbor floor. The material the block is made of is all important as can be seen from the comparison of the submerged weights of concrete, concrete and steel or granite listed below:

TABLE VI

Mooring Block Comparison

	Air Weight	Weight in Sea Water
30 gallon container filled with concrete	601.60 #	344.90 #
30 gallon container filled with 90% concrete & 10% steel	747.84 #	481.14 #
55 gallon container filled with concrete	1,102.90 #	623.30 #
55 gallon container filled with 90% concrete & 10% steel	1,352.4 #	881,.80 #

2,000 pound block concrete vs. 2,000 pound block/granite:

2,000 lb. concrete block in sea water weighs	1,147 #
2,000 lb. granite block in sea water weighs	1,269 #

When comparing the variety of blocks available for mooring, it is important to consider that the submerged weight of concrete is only 86 pounds per cubic foot, while the submerged weight of granite is 111 pounds per cubic foot.

Since, as discussed above, a boat does not pull directly up on a mooring block, but at an angle, the actual uplift on a mooring block is less than the tension on the mooring chain. The longer the chain, the less uplift upon the block. With a chain at least twice the depth of the water, the direct uplift on the block is about one half the tension on the chain. Therefore, the mooring block theoretically must only weigh, when immersed in water, one half the force applied to it by the sloping mooring chain.

However, this sloping pull on the chain also produces a horizontal force on the mooring block as well. This force is about 87% of the tension in the chain. On a soft bottom, the mooring block sinks into the mud and when a strong horizontal pull is produced, it is necessary to displace the mud before the mooring will drag. The shape of the block and the characteristics of the bottom certainly have a bearing on the

ability to resist this horizontal force so that no general rule of thumb can be set up to size the mooring block.* (Many harbor masters recommend flat thinner blocks rather than thick curved cubical shapes.) However, round objects, such as barrels filled with concrete, may roll on the bottom and are not thought to be as good as more rectangular objects.

RECOMMENDED STANDARDS

As stated previously, mooring standards cannot be all encompassing, but general guidelines for mooring construction are certainly appropriate. When a mooring block is to be used, it is suggested that it be granite instead of concrete if at all possible. On a weight basis only, granite is close to 10 percent more effective than concrete and because of its greater density , it may sink into soft bottom sediments more readily and gain supplemental capacity from those sediments. In addition, the chain should be as long as possible and as heavy as practical. THere should be a heavy swivel in the chain as low as possible, but high enough so that it can be inspected at low tide. All shackles should be at least one size larger than the chain with pins securely lashed in place to prevent them from backing out. All rope should be good quality , three strand nylon with heavy galvanized thimbles in all eye splices where the rope joins the chain or other metal. Wherever ropes comes in contact with objects which tend to cause it to wear or braid, it should be protected with chafing gear. Frequently, rubber or plastic hose can be adapted to provide excellent chafe protection from bow blocks and whenever the rope rubs against the stem of the boat. The equipment standards below are appropriate for summer moorings for pleasure boats in protected harbors. Commercial boats which are used all year long or boats in exposed areas would do well to utilize heavier gear.

TABLE VII

MINIMUM MOORING STANDARDS

Boat	Chain	Pennant	Block*	Weight in Air Concrete	Weight in Air Granite
20	5/16"	1/2"	360 #	630 #	570 #
25	5/16"	9/16"	490 #	955 #	775 #
30	3/8"	5/8"	700 #	1,220 #	1,105 #
35	1/2"	3/4"	900 #	1,570 #	1,420 #
40	1/2"	7/8"	1,200 #	2,100 #	1,900 #

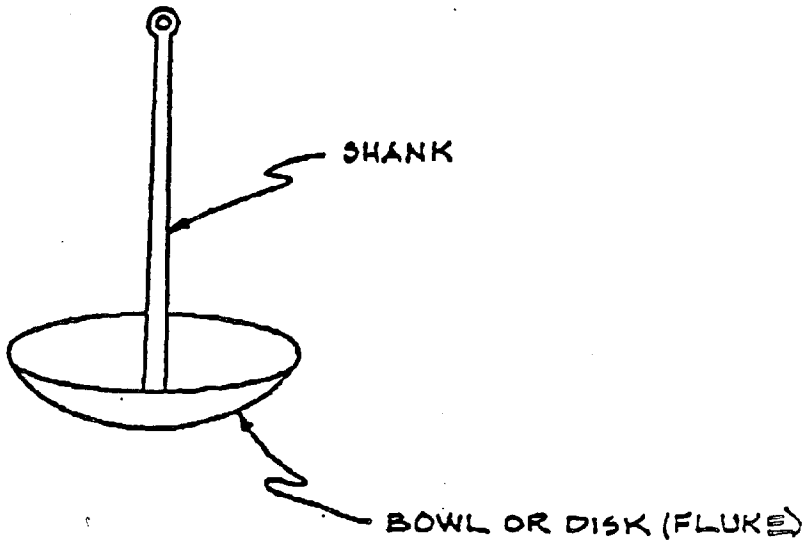
*Weight in Water

The above standards are minimums. An increase in weight beyond the minimum by 30% would be quite appropriate to provide some safety factor. The mooring owner is advised to increase sizes of the mooring components if his vessel is to be exposed to adverse conditions or if his boat places more than ordinary strain on its moorings.

In areas where there is soft sand, silt or mud, a mushroom anchor may be an appropriate alternative. (See Figure X for a typical mushroom anchor.) Once dug in, a mushroom anchor is said to be able to hold a force equal to ten times its weight. This is not at all true in gravel, hard sand, hard clay or any other ocean floor that does not permit a mushroom anchor to dig in; therefore, a mushroom anchor should not be substituted for a block if the bottom characteristics are not appropriate.

The Bruce anchor (See Figure XI) was developed for holding floating oil drilling rigs in place. Where used to anchor these rigs, four or more anchors are deployed so that the load on each anchor is unidirectional with little or no tendency to twist the anchor out of the ocean bottom. They are said to bury well into hard sand or gravel bottoms which are not suitable for mushroom anchors, and it is claimed by the manufacturer that they do not twist out of the bottom. However, if a permanent mooring is to utilize Bruce anchors, there probably should be more nearly emulate their original use as oil rigs. These anchors are relatively expensive (Over $200 for a simple anchor for a 30 foot boat.) so it is doubtful that many moorings systems with three or more Bruce anchors will be used along the Maine coast.

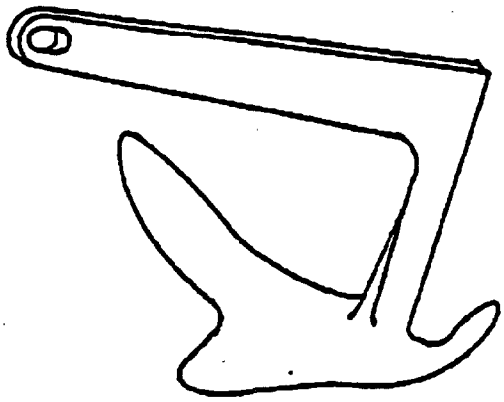
FIGURE X



TYPICAL MUSHROOM ANCHOR

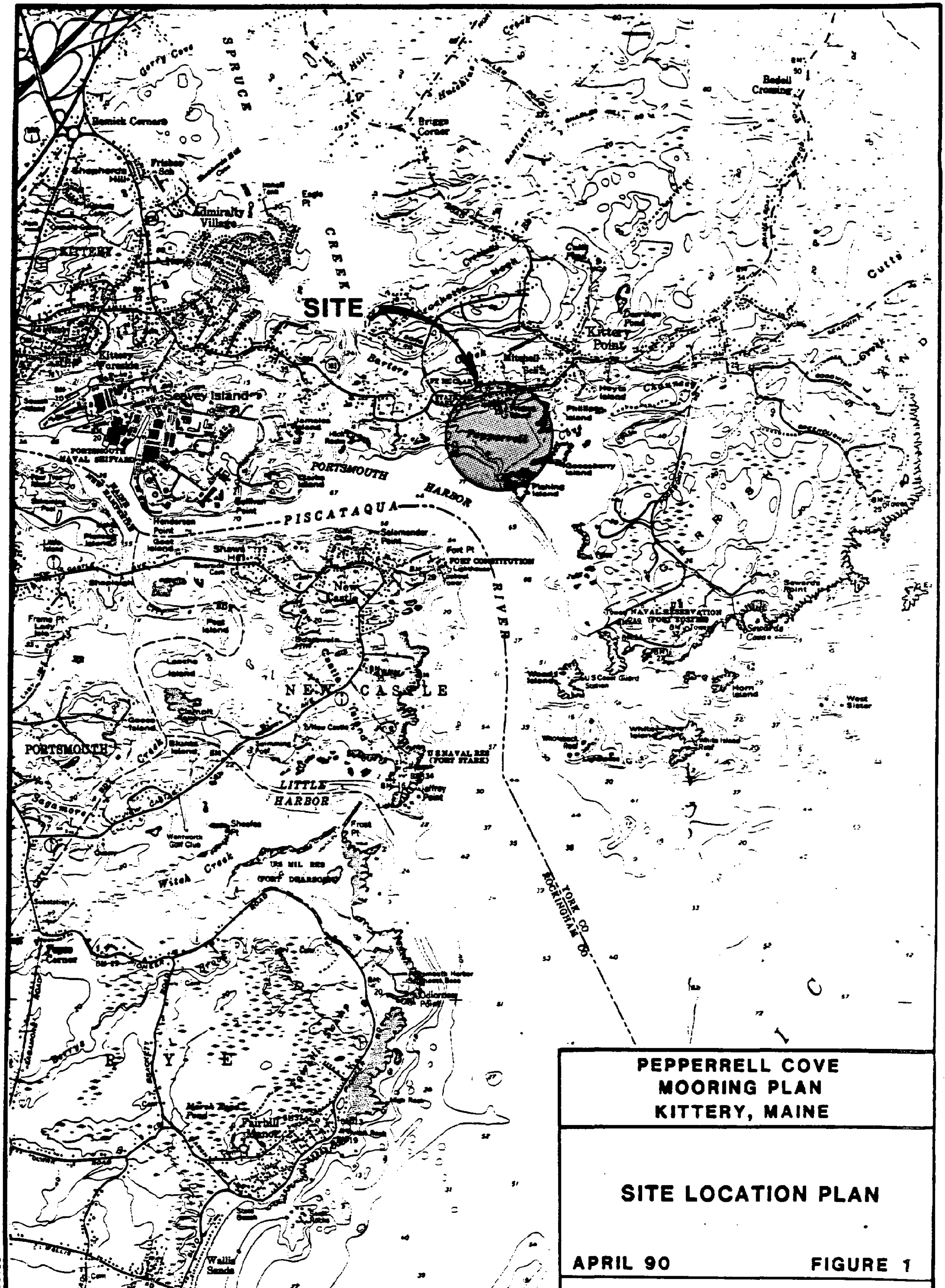
N.T.S.

FIGURE XI



TYPICAL BRUCE ANCHOR

N.T.S.



PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

SITE LOCATION PLAN

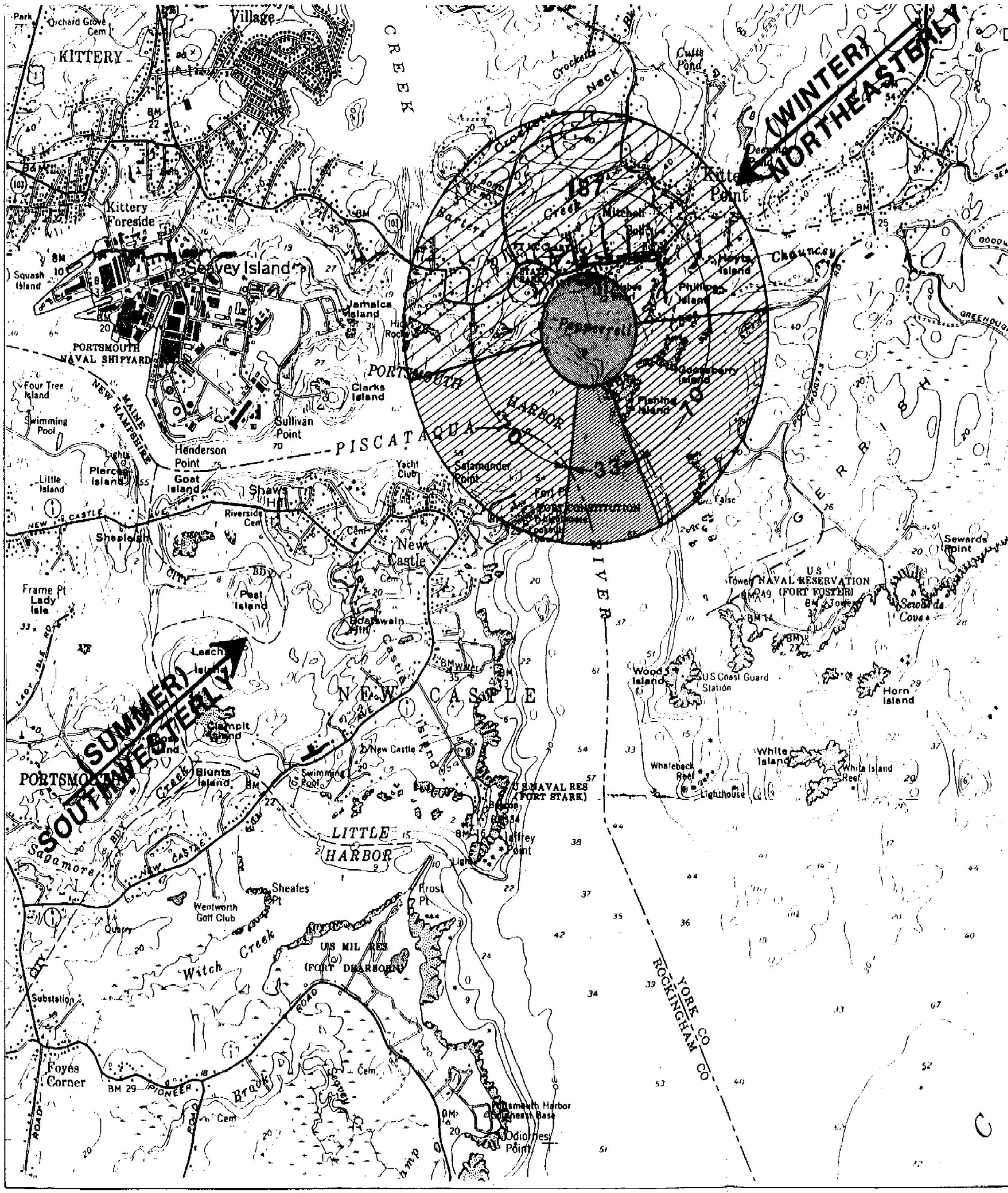
APRIL 90 **FIGURE 1**

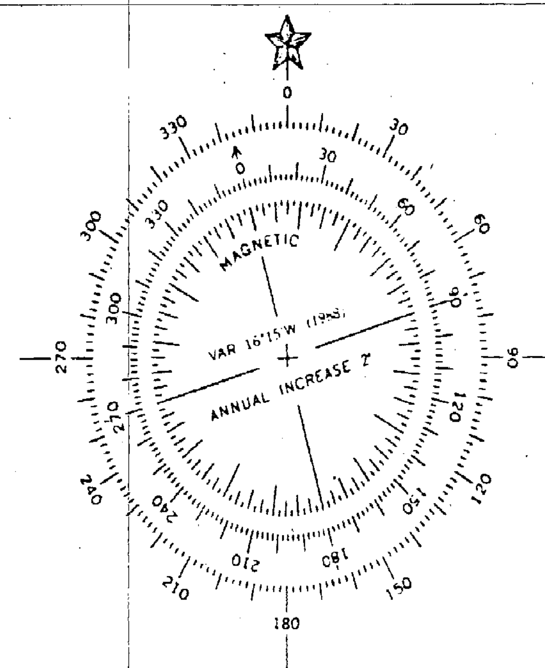
139428

PROFESSIONAL GRAPHICS DPD-3D

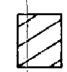
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

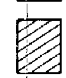
UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
6870 II NW
(YORK HARBOR)

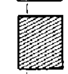




LEGEND

 SHELTERED

 MODERATE EXPOSURE

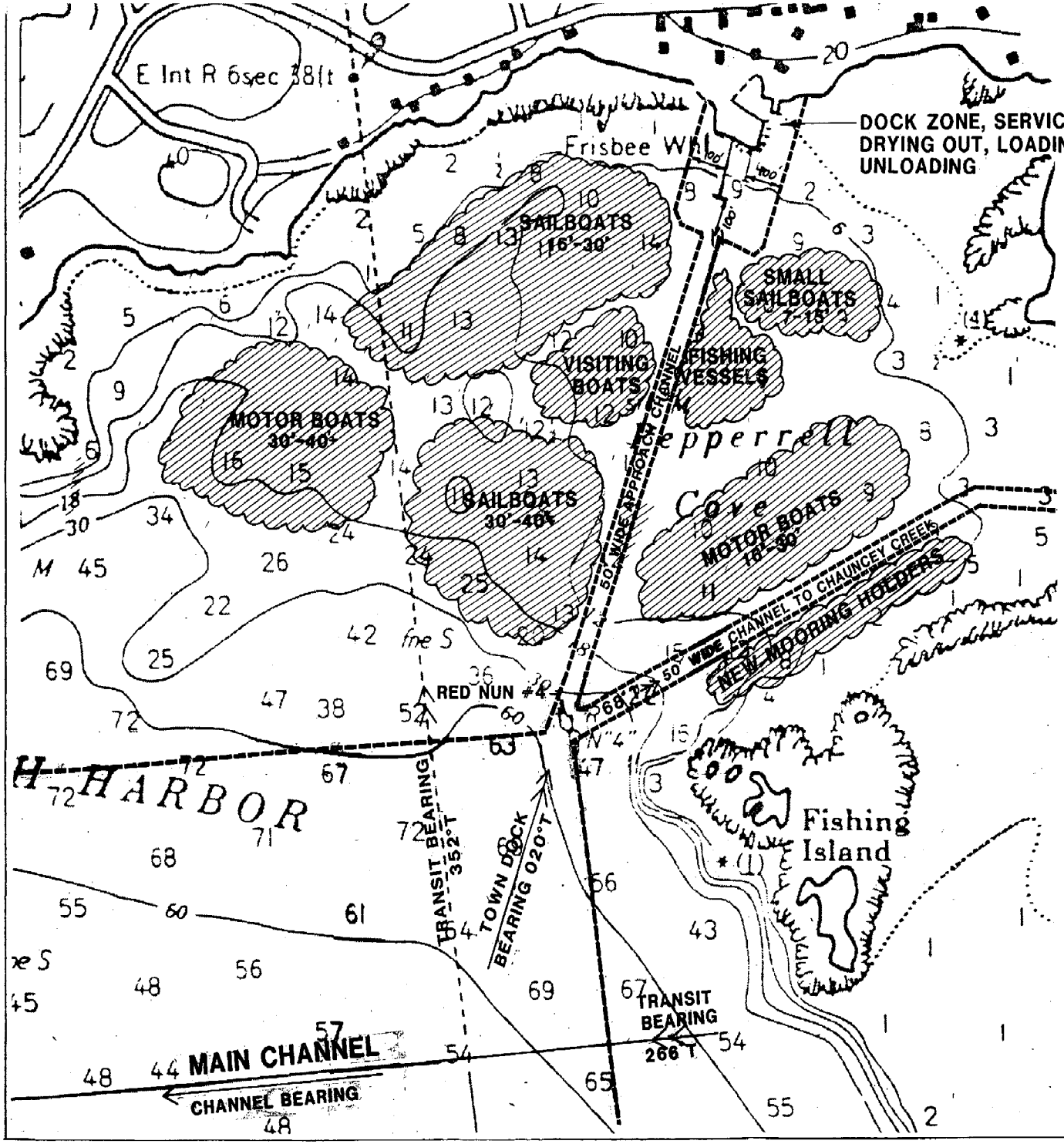
 SEAWARD EXPOSURE

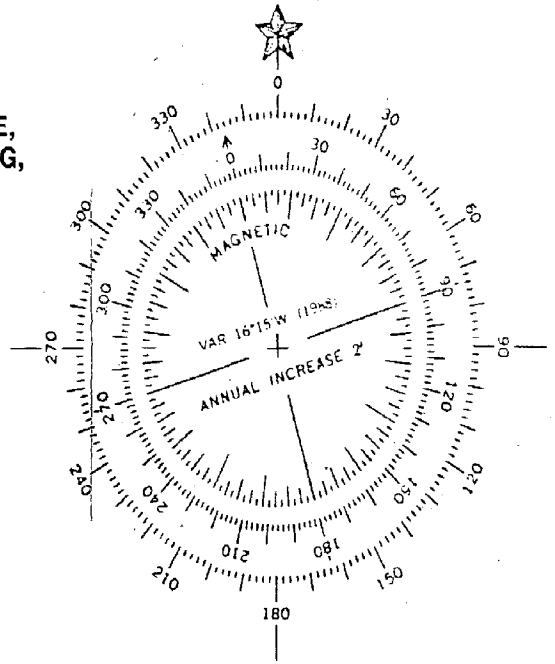
PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

WIND EXPOSURE

APRIL 90 FIGURE 3

T.Y. LIN INTERNATIONAL





NOTES:

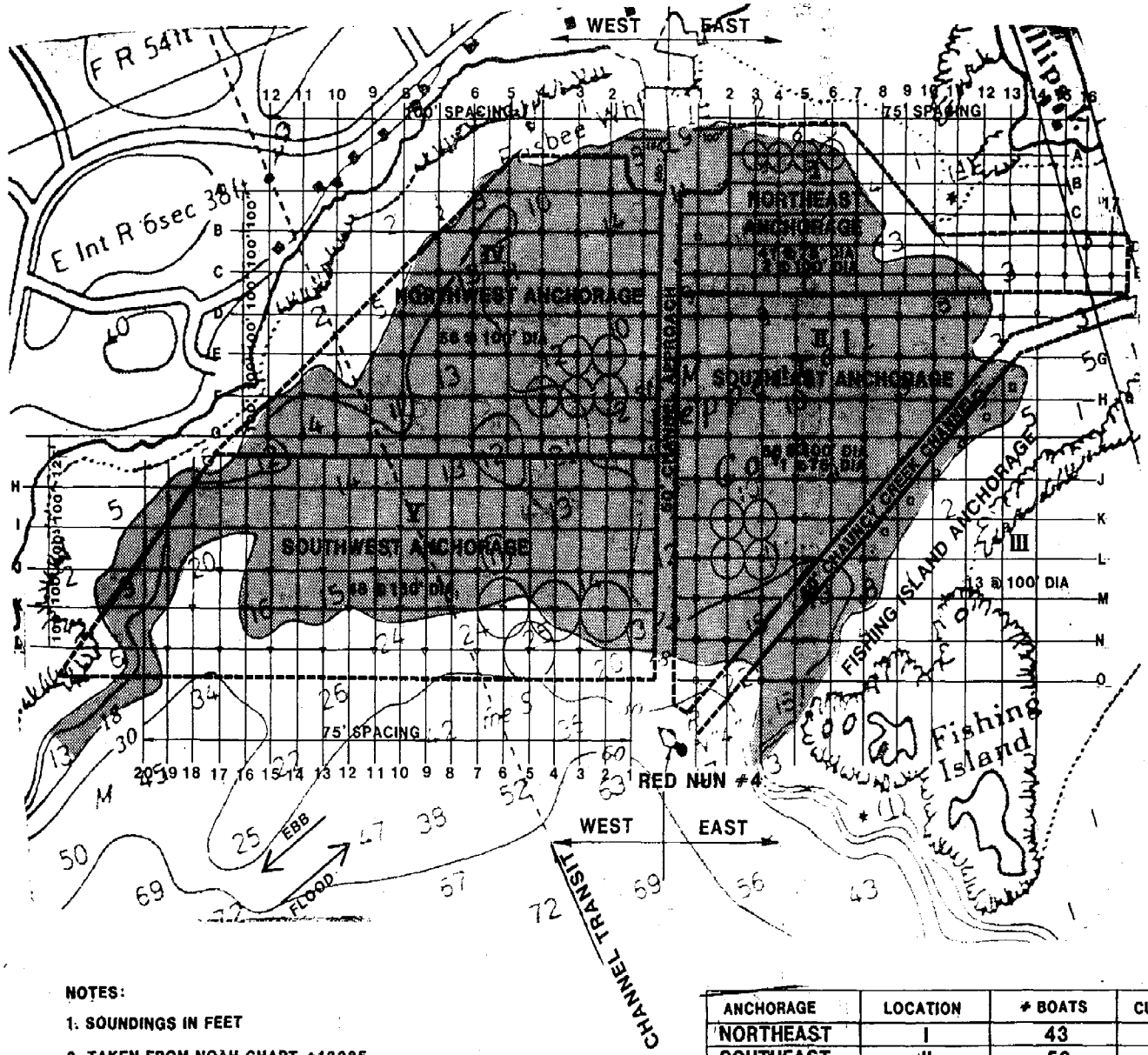
1. SOUNDINGS IN FEET
2. TAKEN FROM NOAH CHART # 13285
3. 1=250'

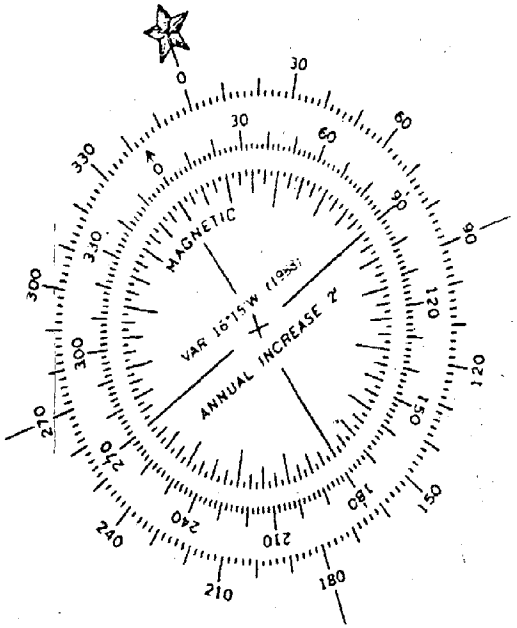
PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

NAVIGATION/SPACE ALLOCATION

APRIL 90 FIGURE 4

T.Y. LIN INTERNATIONAL





SYMBOL	MOORING RADIUS	TOTAL
○	75' DIAMETER	42
□	100' DIAMETER	126
▽	150' DIAMETER	48

TOTAL 216

NOTES:

1. SOUNDINGS IN FEET
2. TAKEN FROM NOAH CHART #13285
3. SHADED AREA REPRESENTS DEPTHS FROM MLW=6FT. TO 18FT.

200 0 200 400
scale feet

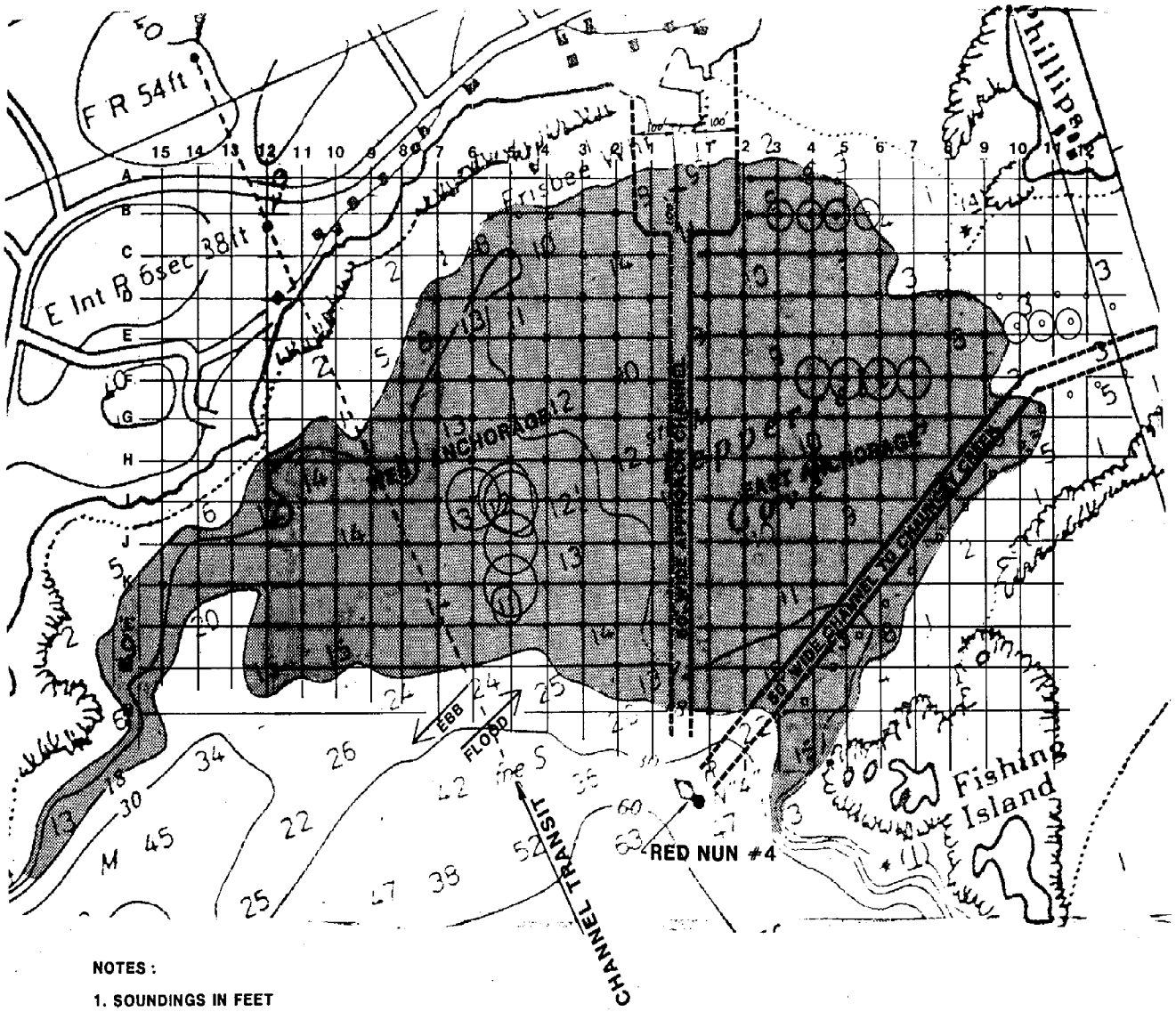
ANCHORAGE	LOCATION	# BOATS	CUMULATIVE
NORTHEAST	I	43	43
SOUTHEAST	II	56	99
FISHING ISLAND	III	13	112
NORTHWEST	IV	56	168
SOUTHWEST	V	48	216

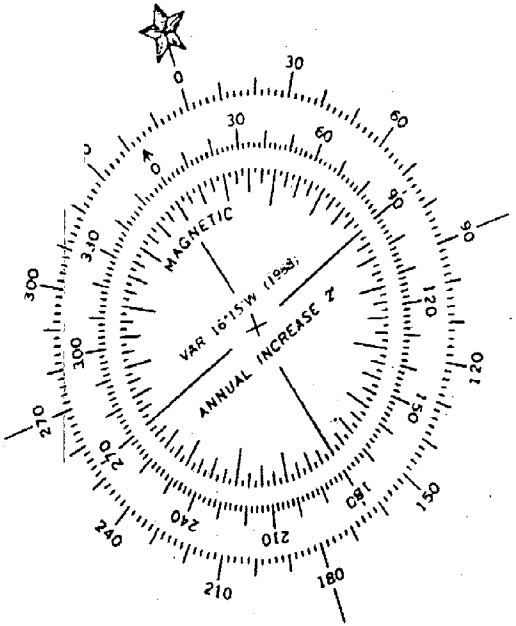
PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

MOORING PLAN A

APRIL 90 FIGURE 5

T.Y. LIN INTERNATIONAL





SYMBOL	MOORING RADIUS	TOTAL
○	75' DIAMETER	28
□	100' DIAMETER	123
▽	150' DIAMETER	54
	TOTAL	205

NOTES :

1. SOUNDINGS IN FEET
2. TAKEN FROM NOAH CHART #13285
3. SHADED AREA REPRESENTS DEPTHS FROM MLW=6FT. TO 18FT.

200 0 200 400
scale feet

ANCHORAGE	BOATS	CUMULATIVE
WEST	106	106
EAST	99	205

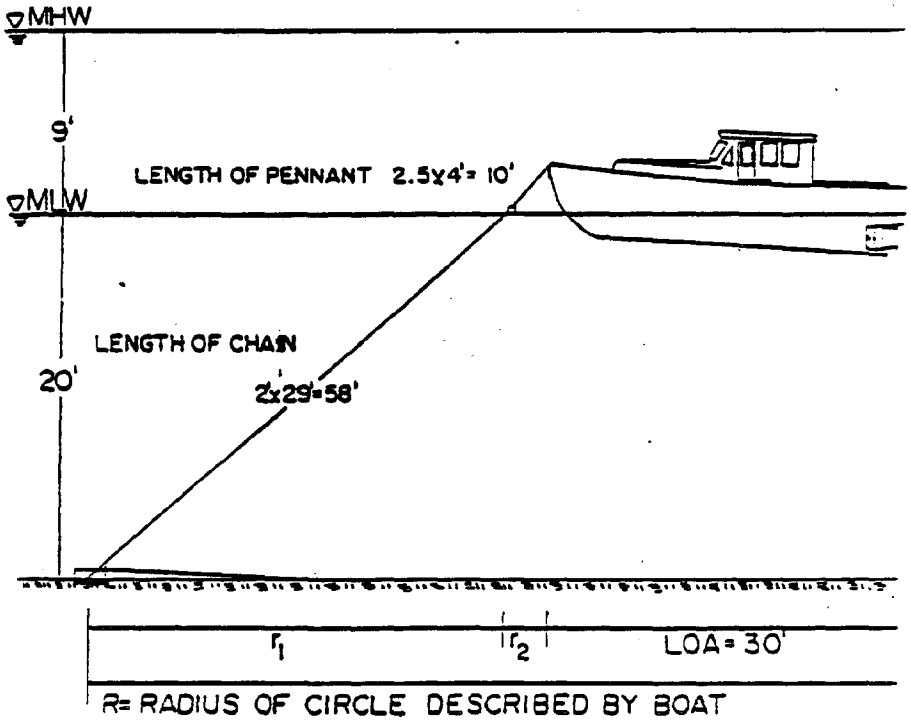
PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

MOORING PLAN B

APRIL 90 FIGURE 6

T.Y. LIN INTERNATIONAL

SINGLE POINT MOORING
BOAT DESCRIBES A CIRCLE WITH
A 360° CHANGE IN THE WIND



R= RADIUS OF CIRCLE DESCRIBED BY BOAT

LENTH OF CHAIN (58') + LENGTH OF PENNANT(10')
= 68'

AT LOW TIDE $r_1 = \sqrt{58^2 - 20^2} = 54.4'$

AND $r_2 = \sqrt{10^2 - 4^2} = 9.2$

$R = r_1 + r_2 + LOA = 54.4 + 9.2 + 30 = 93.6$

TAKEN FROM REFERENCE 1. APPENDIX A.

PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

MOORING SCOPE RECOMMENDATIONS

APRIL 90 **FIGURE 7**

130428

PROFESSIONAL GRAPHICS DPD-3D

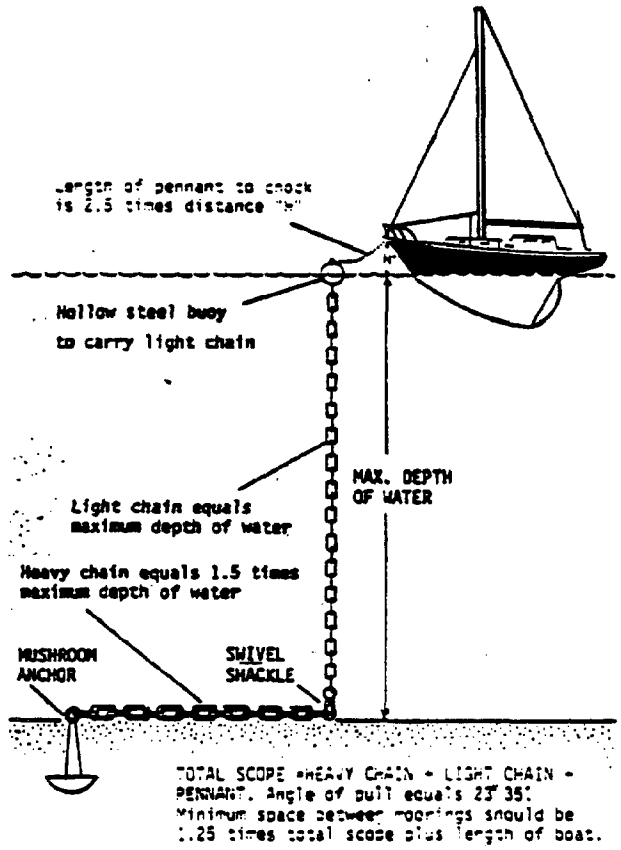


FIG. 554 Diagram of mooring practice recommended by the Lake Michigan Yachting Association and approved by the U.S. Coast Guard. A weight added at the shackle between lengths of heavy and light chain would increase holding power.

TAKEN FROM REFERENCE 4. APPENDIX A.

PEPPERRELL COVE
MOORING PLAN
KITTERY, MAINE

MOORING SCOPE RECOMMENDATIONS

APRIL 90 **FIGURE 8**

139428

PROFESSIONAL GRAPHICS DPO – 3D

APPENDIX H:

SCARBOROUGH, ME SHELLFISH ORDINANCE

SHELLFISH CONSERVATION ORDINANCE TOWN OF SCARBOROUGH

Adopted 12/4/85, amended 1/6/86

1. Authority. This Ordinance is enacted in accordance with 12 M.R.S.A., Section 6671.

2. Purpose. To establish a shellfish conservation program for the Town of Scarborough which will insure the protection and optimum utilization of shellfish resources within its limits. These goals will be achieved by means which may include:

a. Licensing
b. Limiting the number of shellfish harvesters
c. Restricting the time and area where digging is permitted
d. Limiting the minimum size of clams taken
e. Limiting the amount of clams taken daily by a harvester

3. Shellfish Conservation Committee. The Shellfish Conservation Program for the Town of Scarborough will be administered by the Shellfish Conservation Committee consisting of 7 members to be appointed by the Council for terms of 3 years.

The Committee's responsibilities include:

a. Establishing annually in conjunction with the Department of Marine Resources, the number of shellfish digging licenses to be issued.
b. Survey the clam flats to maintain current information on shellfish resources.
c. Submitting to the Board of Selectmen, proposals for the expenditures of funds for the purpose of shellfish conservation.
d. Keeping this ordinance under review and making recommendations for its amendments.
e. Securing and maintaining records of shellfish harvest from the town's managed shellfish areas and closed areas that are conditionally opened by the Department of Marine resources.
f. Recommending conservation closures and openings to the Board of Selectmen or Council in conjunction with the Area Biologists of the Department of Marine Resources.
g. Submitting an annual report to the Municipality and the Department of Marine resources covering the above topics and all other committee activities.

4. Definitions:

a. Resident - the term "resident" refers to a person who has been domociled in the municipality for at least three months next prior to the time his claim of residence is made.
b. Non-resident - the word "non-resident" means anyone not qualified as a resident under this ordinance.
c. Shellfish, Clams - When used in the context of this ordinance, the words "shellfish and clams" mean softshell clams **MYA ARENARIA.**
d. Municipality - refers to Town of Scarborough, Maine.

5. Licensing - Municipal Shellfish Digging is required. It is unlawful for any person to dig or take shellfish from the shores and flats of this municipality without having a current license issued by this municipality as provided by this ordinance.

A commercial digger must also have a valid **STATE OF MAINE COMMERCIAL SHELLFISH LICENSE** issued by the Department of Marine Resources.

A. Designation, Scope and Qualifications.

1. Resident Commercial Shellfish License. The license is available to residents of the Town of Scarborough and entitles the holder to dig and take any amount of shellfish from the shores and flats of this municipality and reciprocating municipalities.

2. Non-resident Non-reciprocating Commercial Shellfish License. The license is available to non residents of this municipality and entitles the holder to dig and take any amount of shellfish from the shores and flats of this municipality.

3. Residential Recreational Shellfish License. The license is available to residents and real estate taxpayers of this municipality, and entitles the holder to dig and take no more than one peck of shellfish in any one day for the use of himself and his facility.

4. Non-resident Non-reciprocating recreational Shellfish License. The license is available to any person not a resident of this municipality and entitles the holder to dig and take not more than one peck of shellfish in any one day for the use of himself and his family.

5. License must be signed: The licensee must sign the license to make it valid.

B. Contents of Application. Any person may apply to the Town Clerk for the license required by this ordinance on forms provided by the municipality.

1. Contents of the Application. The application must be in the form of an affadavit and must contain the applicant's name, current address, birth date, height, weight, signature and whatever other information the municipality may require.

2. Misrepresentation. Any person who gives false information on a license application will cause said licensee to become invalid and void.

C. Fees. The fees for the licenses are as stated below and must accompany in full the application for the respective license. The Town Clerk shall pay all fees received to the Town Treasurer. Fees received for shellfish licenses shall be used by the Town for shellfish management, conservation and enforcement.

RESIDENTIAL COMMERCIAL	$100
NON-RESIDENT NON-RECIPROCATING COMMERCIAL	150
RESIDENT - OVER 65	FREE
RESIDENT RECREATIONAL	15
NON-RESIDENT NON-RECIPROCATING RECREATIONAL	150
DEALER'S LICENSE	25

D. Limitation of diggers. Because the shellfish resources are limited and because a commercial or recreational digger can be expected to harvest a certain volume of clams per year, the number of diggers must be controlled. This number will vary from year to year depending upon estimates of the resource capabilities and management requirements consistent with food resource utilization. The following procedures will be followed to exercise control.

1. Prior to March 1, the Town Shellfish Conservation Committee with the approval of the Commissioner of Marine resources will establish the number of Commercial or non-commercial licenses to be permitted.

2. The Shellfish Conservation Committee will notify the Town Clerk, in writing, prior to March 1, of the number of licenses to be issued. No reservations will be accepted by telephone.

3. The Town Clerk shall issue commercial licenses to residents only until June 1, after which licenses shall be issued to residents and non-residents on a first-come, first-serve basis.

E. License expiration date. Each license issued under authority of this ordinance expires at midnight the 30th day of April next following the date of issue. (Except the first issue - these will expire on 4/30/87.)

F. Reciprocal Harvesting Privilege. Licensees from any other municipality cooperating with this municipality on a joint shellfish management program may harvest shellfish according to the terms of their management program may harvest shellfish according to the terms of their licenses.

G. Children 12 years or younger may accompany a recreational license holder. The recreational license holder and accompanying children are entitled to dig no more than the previously stated amount, "One peck of shellfish in any one day for the use of himself and his family".

H. Suspension. Any shellfish licensee having one conviction for a violation of this ordinance shall have his shellfish license automatically suspended for a period of 30 days. Any shellfish licensee having two convictions for a violation of this ordinance shall have his shellfish license automatically suspended for the balance of the year.

1. A licensee whose shellfish license has been suspended pursuant to this ordinance may reapply for a license only after the suspension period has expired.

2. The suspension shall be effective from the date of mailing of a Notice of Suspension by the Town Clerk to the Licensee.

3. Any licensee whose shellfish license has automatically been suspended pursuant to this section shall be entitled to a hearing before the Shellfish Conservation Committee upon filing of a written Request for Hearing with the Town Clerk within 30 days following the effective date of suspension. The licensee may appeal the decision of the Shellfish Committee before the Board of Selectmen/Town Council by filing a written request for Appeal with the Town Clerk within 7 days of the decision of the Shellfish Conservation Committee.

I. Only clam forks shall be used in the taking shellfish. No shovels or spading forks may be used.

6. Opening and Closing of Flats. The Municipal Officers, upon the approval of the Commissioner of Marine Resources, may open and close the areas for shellfish harvest. Upon recommendation of the Shellfish Conservation Committee and concurrence of the Department of Marine Resources area biologist that the status of the shellfish resource and other factors bearing on sound management indicated that an areas should be opened or closed, the Municipal Officers may call a public hearing on ten-days notice published in a newspaper having general circulation in the Town, stating the time, place, and subject matter of the hearing, and shall send a copy of the notice to the Department of Marine resources. The decision of the Municipal Officers made after the hearing shall be based on findings of fact.

7. Penalty. A person who violates this ordinance shall be punished as provided by 12 MRSA Section 6671.

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