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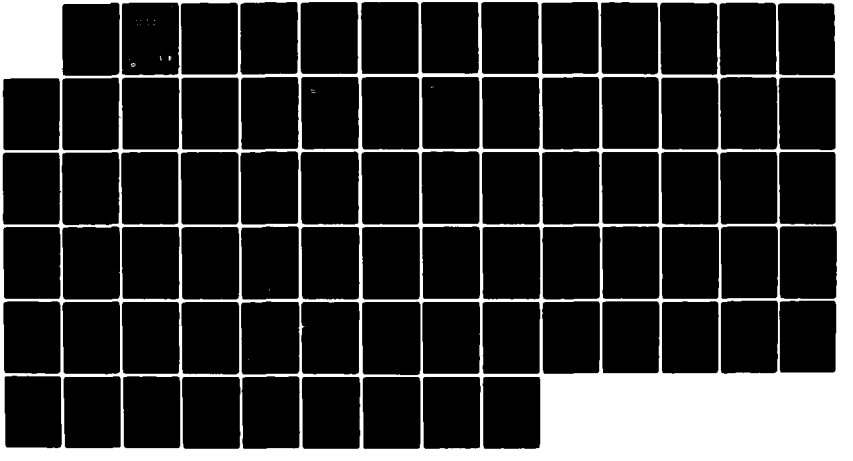

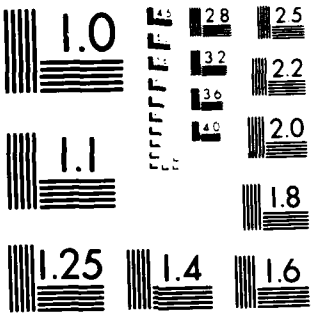

Long Island Sound
Dredged Material Containment
Feasibility Study

(2)

Island / Shoal Screening Report

US Army Corps
of Engineers
New England Division

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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-Long Island Sound Dredged Material Containment Study

-Cover title reads: Island/Shoal Screening report.

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Captain Harbor, Greenwich, Sixmile Reef, off Clinton
Norwalk Islands, Norwalk Duck Island Roads, Clinton-Westbrook
Thimble Islands, Branford Bartlett Reef, Waterford
Faulkner and Goose Islands, off Guilford-

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This study is an initial review designed to identify factors which would eliminate or justify further consideration of a site for a containment facility on the Connecticut Coast. Construction of any containment facility along the Coast inherently involves replacement of on habitat with another. Nearshore shallow waters are considered to be more biological productive than deeper offshore waters. This is the difference between altering existing productive habitat of shallow waters and creating new habitat through artificial island

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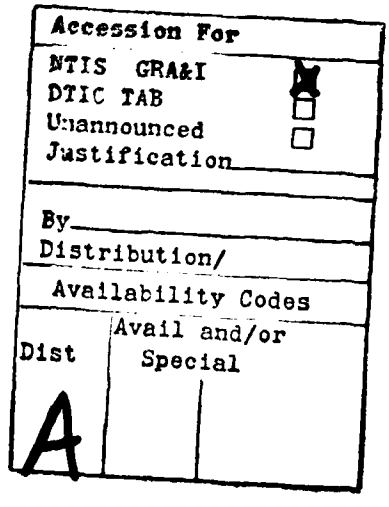
19. Stratford Shoals, Middleground, off Stratford
Menunketesuck Island, Westbrook
containment facility site
Dredged material disposal
Long Island Sound
Shoal
Waste disposal site

20. construction in deeper waters. This factor played an important role in rejecting use of Norwalk Islands and Thimble Islands as containment facility sites. The question of using clean or contaminated sediments in filling containment facilities was discussed in this report. Duck Island Roads appear to be the most promising location studied for a containment site. Falkner/Goose Island and Stratford Shoal both need additional study as potential offshore artificial island sites. If a more acceptable site cannot be found in Western Long Island Sound, then Captain Harbor should be studied. The Norwalk Islands, the Thimble Islands, Sixmile Reef, Bartlett Reef, and Menunketesuck Island do not merit additional study for possible use as containment facilities.

PRELIMINARY SCREENING REPORT
ON
FEASIBILITY OF UTILIZING CONTAINMENT FACILITIES
ALONG THE CONNECTICUT COAST



by

The Oceanic Society
Stamford Marine Center
Magee Avenue
Stamford, CT 06902

to

U.S. Army Corps of Engineers
New England Division
Under
Purchase Order DACW33-81-Q-0054

February, 1983

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1.0 Introduction

Disposal of dredged materials continues to be a major marine environmental concern in the Long Island Sound region. Containment facilities offer an option for disposing of dredged materials by extending existing land seaward or creating artificial islands in shallow waters. Completed containment facilities can be used for recreation, development or wildlife habitat, including creation of marshlands. In other areas of the country, containment facilities have been successfully used for disposal of dredged materials.

This report reflects a preliminary screening effort assessing the feasibility of utilizing specific locations along the Connecticut coast for use as containment facility sites. Both the locations and factors used in evaluating these areas were specified by the U.S. Army Corps of Engineers, New England Division, in proposing the study. The principal purpose of this effort is to determine, based on available data and citizen comment, whether any of these potential containment facility sites merit further consideration and study.

Essentially, this study is an initial review designed to identify factors which would clearly eliminate or justify further consideration of a site for construction of an environmentally acceptable containment facility along the Connecticut coast. Areas reviewed in this report were suggested to the Corps of Engineers by citizens, fishermen, coastal land owners and government officials. Inclusion of an area in this study does not imply that consideration of that site has moved beyond a preliminary or conceptual stage.

In designing this study, the Corps of Engineers proposed review of the potential for containment facilities in broad geographical areas, i.e.: the Norwalk Islands. In order to bring this discussion into focus the study staff outlined a containment facility in a site

representative of conditions in the area. Site specific assessments in this report are completely hypothetical and are undertaken to reflect conditions found throughout the broader geographical area identified by the Corps of Engineers.

Nothing in this report should be taken to reflect support or endorsement of a specific containment facility site by either the Corps of Engineers, New England Division or the Oceanic Society. Instead, the findings of this report are designed as a basis for further study and consideration of specific containment facility sites. This is but the first step in a process which may lead to further study, public involvement, and consultation with state as well as local officials on a site specific basis. Design, detailed assessment of environmental effects and consideration of an actual construction project are several steps removed from the present, preliminary screening study.

1.1 Background Review

Since the inception of the National Environmental Policy Act in 1969, disposal of materials dredged from the harbors and channels has been seen as a potential pollution problem in coastal and estuarine environments. While much of the sediment dredged around the Sound is considered to be relatively innocuous, materials removed from older urban harbors are often contaminated with hazardous substances ranging from toxic chemicals to heavy metals and petroleum hydrocarbons. Some scientists believe open water disposal of contaminated sediments poses a real threat to marine environmental quality and potentially to public health.

Sediments to be dredged from Long Island Sound harbors are classified by the U.S. Army Corps of Engineers under the New England River Basin Commission's 1980 Interim Plan for Disposal of Dredged Materials from Long Island Sound, (see Dredging and Dredged Materials Management in the Long Island Sound Region, report to the New England Governors' Conference, August 13, 1982, pages 63-70). This system classifies sediments as:

* Class I, low level of pollutants, suitable for open water disposal, habitat creation, and land fill cover;

* Class II, moderate level of pollutants, requires assessment to determine if "potentially degrading." If judged not "potentially degrading," may be disposed of in open waters and used for landfill cover, etc. If considered "potentially degrading," sediments must be treated as Class III material; and

* Class III, high level of contaminants, considered to be potentially degrading and requires special treatment such as capping sediments dumped on the bottom of the Sound with a layer of cleaner dredged material.

To the public, containment is seen as serving one of two functions:

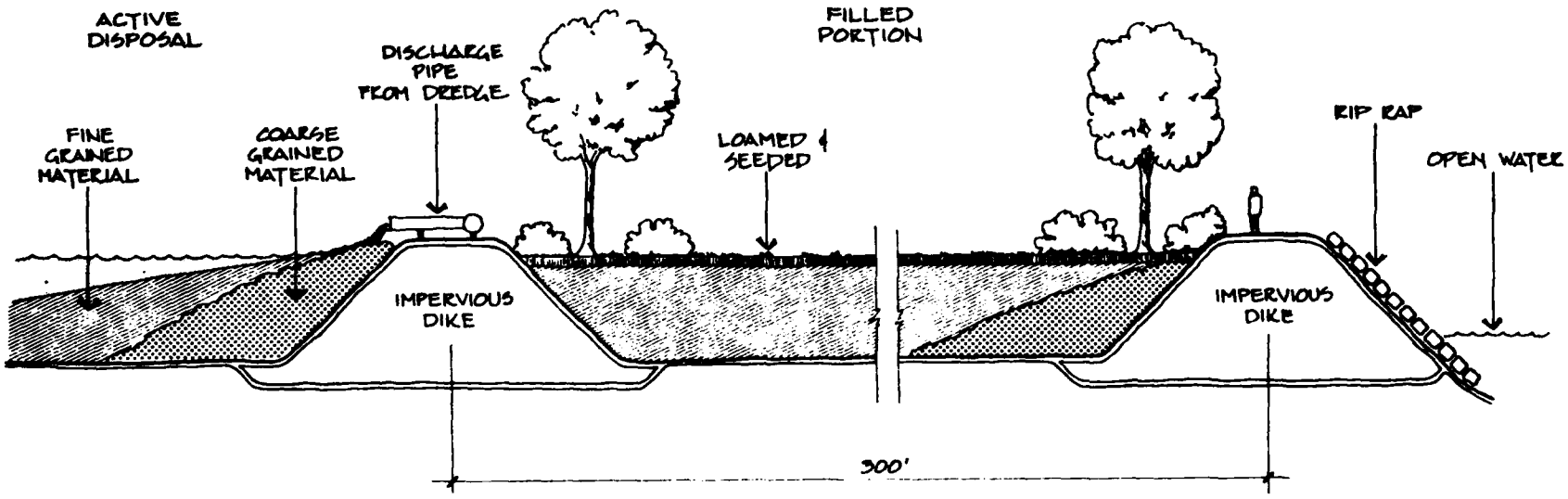
(1) isolating objectionable materials with post-disposal use of secondary importance; or

2) creating valuable shorefront property with the character of material to be used of secondary importance although clean material is obviously preferred. Containment can serve as a disposal mechanism for some Class III materials although these facilities can also be used solely for disposal of clean sediments. A marsh creation project, for example, might contain some Class III materials at the lowest levels of the project while cleaner sediments would be placed near the surface. The character of sediments to be contained in a facility is an issue addressed during design and assessment of environmental effect. As such, it is beyond the scope of this study.

Containment facilities are created by placing dredged materials behind dikes to extend existing land seaward or create artificial islands (see figure 1.1). Island construction is most feasible in shallow waters (i.e.: depths less than 30 feet). At least 70 containment facilities have been built by the Corps of Engineers around the country but none have been completed in the Sound. A quasi-containment facility does exist in the Connecticut River and has been used as a habitat creation project. The Corps' New England Division is currently undertaking a Congressionally mandated study of the potential for containment in this region.

Corps of Engineers studies show containment facilities built in the past can be designed and constructed with the creation of minimum turbidity and odor problems. Corps research indicated containment facilities utilizing contaminated sediments successfully isolated these materials from the adjacent environment.

FIGURE 1.1



CONCEPTUAL DIAGRAM OF A
DREDGED MATERIAL CONTAINMENT AREA

Completed containment facilities can be used for development opportunities, recreational activities, or wildlife habitat. In Clinton, CT, a possible containment facility will extend a saltmarsh abutting a state park. An island creation project has been proposed for Black Ledge off Groton and New London. Both of these projects have progressed to site specific study and assessment by the Corps and are not considered in this report.

1.2 Potential Containment Sites

Broad geographical areas designed for review in this report include:

* Captain Harbor, Greenwich, an area of open water and islands off Byram, Greenwich, and Cos Cob harbors. A number of sizable islands and numerous small islands and rock outcroppings are located in the study area. The area considered is bounded on the west by Manursing Island, Rye, New York; on the east by Greenwich Point; and extends south into Long Island Sound approximately 1.25 NM offshore to the 30-foot contour.

* Norwalk Islands, Norwalk and Westport, an area of open water and islands at the entrance to Norwalk harbor. The majority of islands lie within the boundaries of Norwalk with Cockenoe Island to the east being located within the Town of Westport. There are approximately nine large islands with numerous smaller islands and rock outcroppings flanking the larger islands. Study area is located south and east of Bell Island; extending east to a point due south of Cedar Point and the entrance to the Saugatuck River. The 30-foot contour marks the study area's south border.

* Milford Point, Milford, a barrier beach and adjacent mudflat area located at the mouth of the Housatonic River on the eastern shore. The study area considered is located in a triangle between Milford Point on the northwest; outer breakwater flasher to the south; and Laurel Beach to the east.

* Thimble Islands, Branford, an open water and rocky island archipelago located to the east of Branford Harbor and west of Sachem Head. More than a dozen sizable islands make up "The Thimbles." Study area extends south from Brown Point to Browns Reef marker (#26) and from there northeast to Hoadley Point.

* Falkner Island, off Guilford, an area located approximately 3 nautical miles south of the entrance to Guilford Harbor. There are two major islands, Falkner Island and Goose Island and several rock outcroppings. The study area includes both islands and the shoal area in between.

* Sixmile Reef, off Clinton, a shoal area located approximately 3.0 nautical miles (NM) south of Hammonasset Point; extending eastward for 3.0 NM south of Menunketesuck Island. No portion of the reef is exposed at low tide and its depth ranges from 19-30 feet at low tide.

* Duck Island Roads, Westbrook, a harbor of refuge constructed by the Corps of Engineers completed in 1917. The harbor consists of two stone rip rap breakwaters extending at right angles north and west of Duck Island. The north breakwater extends 1,100 feet from Duck Island while the western breakwater extends 2,697 feet to the west. A third breakwater is located to the west of Duck Island extending 3,750 feet south from Stone Island.

* Menunketesuck Island, Westbrook, a slender island and associated sand flats extending southwest from the entrance to the Patchogue River. It lies due east of Duck Island Roads. The study area includes Menunketesuck Island and the sand shoal areas extending west to the Patchogue River entrance and northwest to West Branch.

* Bartlett Reef, off Waterford, an area of shoals that lies south of Seaside Point to the east of Niantic Bay and to the west of New London Harbor. The reef's northern edge lies ½ NM southwest of Seaside Point and is marked by Black Can "1." Bartlett Reef extends south for approximately 1.3 NM and its southern tip is marked by the Barlett Reef horn. A few rock outcroppings of the reef are visible at low tide though the majority of the reef lies 2-12 feet below low tide.

1.3 Study Screening Factors

In considering specific sites for the feasibility of use for containment facilities, the following factors were considered:

* Biological productivity, importance of the area as habitat for feeding, breeding, nursery, and/or other use by marine and marine dependent species. For marine species, factors reviewed include use of the area by commercially important finfish and shellfish as feeding, breeding, or nursery areas. For terrestrial species, the use of intertidal and upland areas by shorebirds, seabirds, and other species was considered. Important wildlife, erosion, flood hazards, and major habitat type were also screened.

* Shellfish concentrations, areas of important shellfish concentrations were considered in relationship to their proximity to recommended sites. Efforts were made to separate shellfish beds of significant economic importance from peripheral beds of secondary importance. It should be noted that commercially important shellfish species are common residents from the intertidal zone to depths of 30 feet so this study attempts to reflect the importance of the shellfish resource in relationship to the potential impact of the containment site.

* Finfish concentrations, potential impact on finfish were evaluated in terms of habitat losses and potential population decline. In many cases lost habitat would be mitigated by the creation of new habitat. For example, the rock rip-rap of a containment bulkhead provides a new habitat. In many cases, definitive information on location of significant habitat areas for economically significant species of finfish is lacking.

* Size of potential containment facilities, discussions with the Corps of Engineers, New England Division, show the economic feasibility of containment generally requires a facility be larger than 6 acres and located in coastal waters less than 30 feet deep. Given these guidelines, potential sites were evaluated in terms of their abilities to meet size and water depth requirement.

* Existing land use, each site is evaluated in terms of existing land use, adjacent land use and future land use potential. These land uses are considered in relationship to the proposed containment facility: some uses may be potentially benefited while others are in direct conflict with development of a containment structure.

* Distance to dredging activities, the distance between the proposed containment site and existing federal maintenance projects are determined with the size and nature of the maintenance project given. The location of smaller recreational projects are also included where appropriate.

* Navigation hazards, proximity to and affect upon navigation is appraised. The nature of the traffic and impact is also given: i.e., recreational sportfishing, tug traffic, etc. Conditions to mitigate potential navigational hazards are also considered where appropriate.

* Public comment, correspondence and reaction from the public in response to press releases, mailing, and personal contact are listed.

2.0 Study Methodology

As proposed by the Corps of Engineers, New England Division, this preliminary screening study reflects existing data and does not report any new field work or reflect additional scientific research. Information contained in the study report was developed during discussions with local, state and federal officials; telephone conversations and written correspondence with citizens and municipal officials; and interviews with marine scientists, fishermen, oystermen, and conservationists.

The original scope of work developed by the Corps was expanded at the request of the Oceanic Society to include:

* a mass mailing to individuals, organizations and local elected officials who had expressed an interest in containment and were on a mailing list developed for the Corps by the Long Island Sound Taskforce (Long Island Sound Dredged Material Containment Study Workshop Project, 1981) (sample letter section 2.1); and

* a press release soliciting public comment on the study sites based on the screening factors identified by the Corps (sample letter, section 2.2). Comments received during this process are reflected in Secion 3 of this report.

During the study period, Oceanic Society staff met with representatives of the New England Division to discuss definition of sites and selection factors.

Section 2.1 Sample letter

THE OCEANIC SOCIETY

EDUCATION • RESEARCH • CONSERVATION

EXECUTIVE OFFICES
Magee Avenue
Stamford, Ct. 06902
(203) 327-9786

Dear Coastal Citizen:

You are invited to assist in a feasibility study examining the potential of utilizing islands and shoal areas along the Connecticut coast for use as dredged material containment facilities. The Oceanic Society is conducting this research under contract to the U.S. Army Corps of Engineers, New England Division.

Our goal is to determine whether ten specific sites should be studied further in the search for locations suitable for dredged material containment through creation of islands. Inclusion of an area in this effort clearly does not signal any firm plans for construction of a containment facility. Rather, we are working to identify sites which merit detailed scientific examination and environmental review.

Locations identified by the Corps of Engineers for the study include:

* the Captain's Harbor area off Greenwich;
* the Norwalk Islands off Norwalk Harbor;
* the Thimble Islands off Stony Creek;
* the Falkner Island area off Guilford;
* the Six Mile Reef area off Clinton;
* the Duck Island Roads area off Clinton and Westbrook;
* the Bartlet Reef area off Waterford;
* the Stratford Shaol area off Stratford;
* the Menunketesuck Island area off Clinton; and
* the Charles Island area off Milford.

Western Regional Office / OCEANS Editorial Office / Expeditions Office: Fort Mason, San Francisco, Ca. 94123. (415) 441-1104
Mid-Atlantic Regional Office: Center for Ocean Studies, Gardner's Basin, Atlantic City, N.J. (609) 348-5252

One of the most difficult parts of this study is considering the competing interests for the shallow waters most suitable for islands extension or construction. We would appreciate your assistance in acquiring information on the different values of these areas.

Specifically, during the study we will by analyzing each location in terms of:

* biological productivity, or whether the area plays an important part in the Sound's marine ecosystem;

* shellfish concentrations, to reflect location of oyster, clam and scallop beds;

* finfish concentrations, to identify areas important for sport and commercial fishermen; and

* navigational hazards at or near the site. We will also consider existing land use at the site, distance to exsiting dredging activities, other potential impacts and size of potential containment facilities suitable for each area.

We hope you will assist us by submitting your comments to our staff within the next four weeks. Please contact me at the Oceanic Society, (203) 327-9786, if you have any questions on this study.

Thank you for your consideration and assistance in this project. We look forward to hearing from you on this important topic.

Sincerely,

Thomas C. Jackson
Vice President

TCJ:bas

Section 2.2 Sample press release

THE OCEANIC SOCIETY

EDUCATION • RESEARCH • CONSERVATION

EXECUTIVE OFFICES
Magee Avenue
Stamford, Ct. 06902
(203) 327-9786

FOR IMMEDIATE RELEASE

FOR MORE INFORMATION
(203) 327-9786

STAMFORD - - - Can sediments dredged from urban harbors be used to build islands along the Connecticut coast?

That question is examined in a feasibility study undertaken by a national marine conservation group -- the Oceanic Society -- under contract with the U.S. Army Corps of Engineers, New England Division.

The study is another step in the Corps' ongoing effort to determine if materials dredged from harbor bottoms around the Sound can be used to create islands or extend coastal marshes. While never used in this region, Corps officials say this practice is common in other areas of the country.

During the short-term study, Oceanic Society researchers will focus on ten sites along the state's shoreline. Factors to be considered in evaluating each location include:

* biological productivity, or whether the area plays an important part in the Sound's marine ecosystem;

* shellfish concentration, to reflect location of oyster, clam and scallop beds;

* finfish concentrations, to identify areas important for sport and commercial fishermen; and

* navigational hazards at or near the site.

Individuals and organizations concerned with these or other aspects of the study should contact Oceanic Society Vice President Thomas C. Jackson at the Oceanic Society's offices in the Stamford Marine Center on Magee Avenue here. Citizen comments and concerns received during

the next four weeks will be reflected in the Oceanic Society study, Jackson said.

"Inclusion of an area in our study certainly does not signal firm plans on anyone's part to press ahead with a containment project," he added. "At most, we will be identifying sites which merit detailed scientific examination and environmental review."

Locations earmarked for the Oceanic Society study include areas off the coast of Greenwich, Norwalk, Stony Creek, Guilford, Clinton, Westbrook, Waterford, Milford, and Stratford.

"The purpose of this study is to determine the feasibility of utilizing islands and shoal area for potential use as dredged material containment facilities through the extension of existing land or creation of new islands," Jackson said. "Any information people can pass on to us about these areas will help in our study."

-30-

3.0 Site Specific Screening

This study applies a series of preliminary screening criteria established by the Corps of Engineers to locations identified as potential containment facility sites by the Corps. Since the Corps described study area in broad terms -- i.e.: The Thimble Islands -- the study staff has identified hypothetical containment facility locations for the purposes of this report. These areas were selected to reflect representative environmental conditions and marine resources found in the larger geographical area designated for preliminary screening by the Corps of Engineers.

It is essential to remember that designation of a hypothetical containment facility site for assessment in this preliminary screening report neither reflects any interest by the Corps in, nor support by, the Oceanic Society for construction of an artificial island or land extension project at that location. The location and design of containment facilities examined in this study are intended solely to focus the assessment into an understandable frame of reference.

3.1 Captain Harbor, Greenwich

An area some 0.9 NM east of Byram Point and due south from Byram Harbor was considered in this study (see map 3.1). For this assessment, a containment facility connecting the Calf Island or one extending eastward from the larger of these islands to include Bowers Island was examined. In either case, an area some 600 yds. by 400 yds. would be constructed in depths ranging up to nine feet (MLW).

Biological productivity is judged to be high by municipal conservation officials. Although this area has not been the subject of detailed scientific study, it does appear to be an important habitat for both flounders and oysters. This assessment is based on informal discussions with fishermen familiar with the area and inferences drawn from research in nearby locations. The Calf Islands have undergone significant erosion according to some sources. This suggests the presence of strong tidal currents.

Shellfish concentrations are high throughout much of the Captain Harbor area. Historically, numerous shellfish beds have been leased in this part of the Sound. Many of these beds are said to be highy productive although the shellfish industry is somewhat reluctant to discuss details of this question. A 1978 Oceanic Society Shellfish Survey conducted for the Greenwich Conservation Commission documented significant shellfish resources in town waters. The survey included extensive field work in the Greenwich Cove area and has been supplemented by more recent Oceanic Society sampling in this area.

Finfish concentrations vary with the season. Greenwich Conservation Coordinator Thomas Baptist believes this area is an important area for sport and commercial fishermen. Representatives of Connecticut's Department of Environmental Protection, Marine Fisheries Division also

expressed concerns that nearshore areas such as Captain Harbor often serve as important spawning and nursery areas for species such as winter flounder.

Size of the potential containment facility would be significantly limited by a series of factors. Depths in the area studied are not great enough to contain a high volume of sediments without extending the facility significantly above sea level. In addition, the maximum height of a facility would be limited in consideration of coastal resident's concerns. Further, a large containment facility would, by its very nature, operate for an extended period of time. It seems unlikely Greenwich residents or municipal officials would find this acceptable.

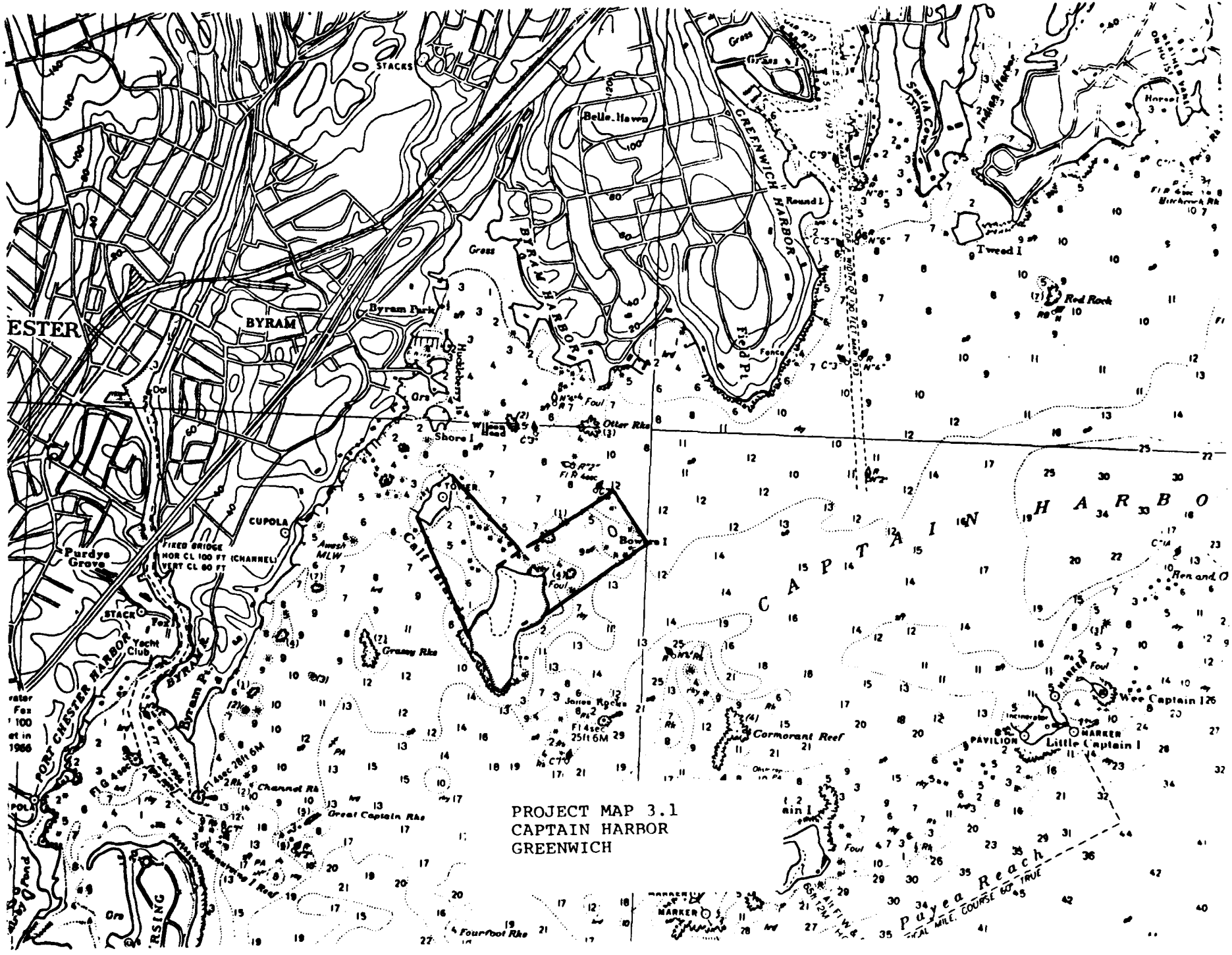
Existing land use at the site involves public recreation. The Captain Islands, particularly Little Captain, are heavily used for recreational purposes. Little Captain Island has regular ferry service linking Greenwich and municipal beaches on the island. The Calf Islands are utilized for recreation by individuals and local organizations such as the Boys Club. In addition, the adjacent mainland is a well developed residential shoreline overlooking the containment site. It is unlikely that a containment facility off this section of coast would be viewed as congruent with local land use by Greenwich residents or officials.

Distance to existing dredging activity would depend on the location of ports utilizing the facility. Port Chester, Greenwich, and Cos Cob (Mianus River) harbors are all within a few nautical miles of the Captain Harbor area. The Mianus River contains pockets where sediments are classified as Class III while materials to be dredged from both Greenwich and Port Chester have been classified as Class II. In the case of Port Chester, however, the upper river may well also contain Class III sediments, (see Section 1.1 for discussion of sediment classifications). In addition to Port Chester remaining Westchester ports

could be considered potential donors to this site since New York State has not expressed interest in exploring sites within its own waters. Use of this site by Westchester County would elicit strong reaction from Fairfield County residents.

Navigational hazards at or near this site would largely depend on the location and design of the facility. Concerns to be considered in assessing potential navigational dangers include the large number of recreation craft using this area; the large number of reefs and islands in the area which limit maneuvering; and potentially strong currents and tidal flow around island in this area.

Public comment on the Captain Harbor site has been minimal despite publicaton of a news release describing this study in the local press. Correspondence has been exchanged with Greenwich Conservation Coordinator Thomas Baptist. Informal discussions with Greenwich residents suggested, however, substantial public opposition would develop should this site be considered further. The Town of Greenwich has recently recognized a need to control small private operations which have utilized upland disposal of dredged material. The continued use of open water disposal site WLIS III is also a factor.



PROJECT MAP 3.1
CAPTAIN HARBOR
GREENWICH

3.2 Norwalk Islands, Norwalk

The study's screening factors combined with the unique character of these islands makes it difficult to identify, for the purpose of this report, a hypothetical containment facility location in the archipelago. The study site selected is representative of the area as a whole and encompasses Goose Island and the shoals directly to the northeast and southeast to create a diamond shaped design measuring roughly 800 yards on a side. An existing navigational beacon marks the artifical island's northern tip while the terminus of Goose Island reef would be its southern tip (see map 3.2).

Biological productivity is considered among the highest in western Long Island Sound according to state and local officials. Connecticut conservationists support this conclusion and have expressed concern that any containment facility in the island chain would lower biological productivity. Data developed in the Oceanic Society's Coastal Energy Impact Program benthic research survey support this concern. Even minor modifications of tidal currents and flushing could have significant effects on the marine environment here.

Shellfish concentrations are said to be exceptionally high in beds around the Norwalk Islands. Historically, this area supported highly productive beds which helped make Norwalk a major American oyster port. The oyster beds surrounding these islands are used for both commercial and recreational purposes. Lobsters and clams are also taken in significant numbers.

Finfish concentrations vary according to the season but attract both recreational and commercial fishermen. Striped bass, flounder, blackfish, and bluefish are taken in this area of the Sound. Marshes and shallows around these islands are believed to play an important role as habitat for many marine species.

Size of the potential containment facility is limited by shallow depths (less than seven feet) and potential restrictions on the height an artificial island would be permitted to attain by citizens and officials in Norwalk and Westport. Construction of a facility in deeper water (greater than 17 feet) to the east of the site under discussion would afford a larger capacity. However, a deeper structure might face erosion forces similar to those currently affecting nearby Cockenoe Island. Westport officials suggested that Cockenoe be considered as a potential site of the containment facility in order to help control coastal erosion. The difficulty in devising a structural solution for an island undergoing erosion blocked consideration of the Cockenoe Island in this study. A containment facility in the Norwalk Islands could also be affected by recent federal legislation protecting portions of the archipelago as designated barrier islands.

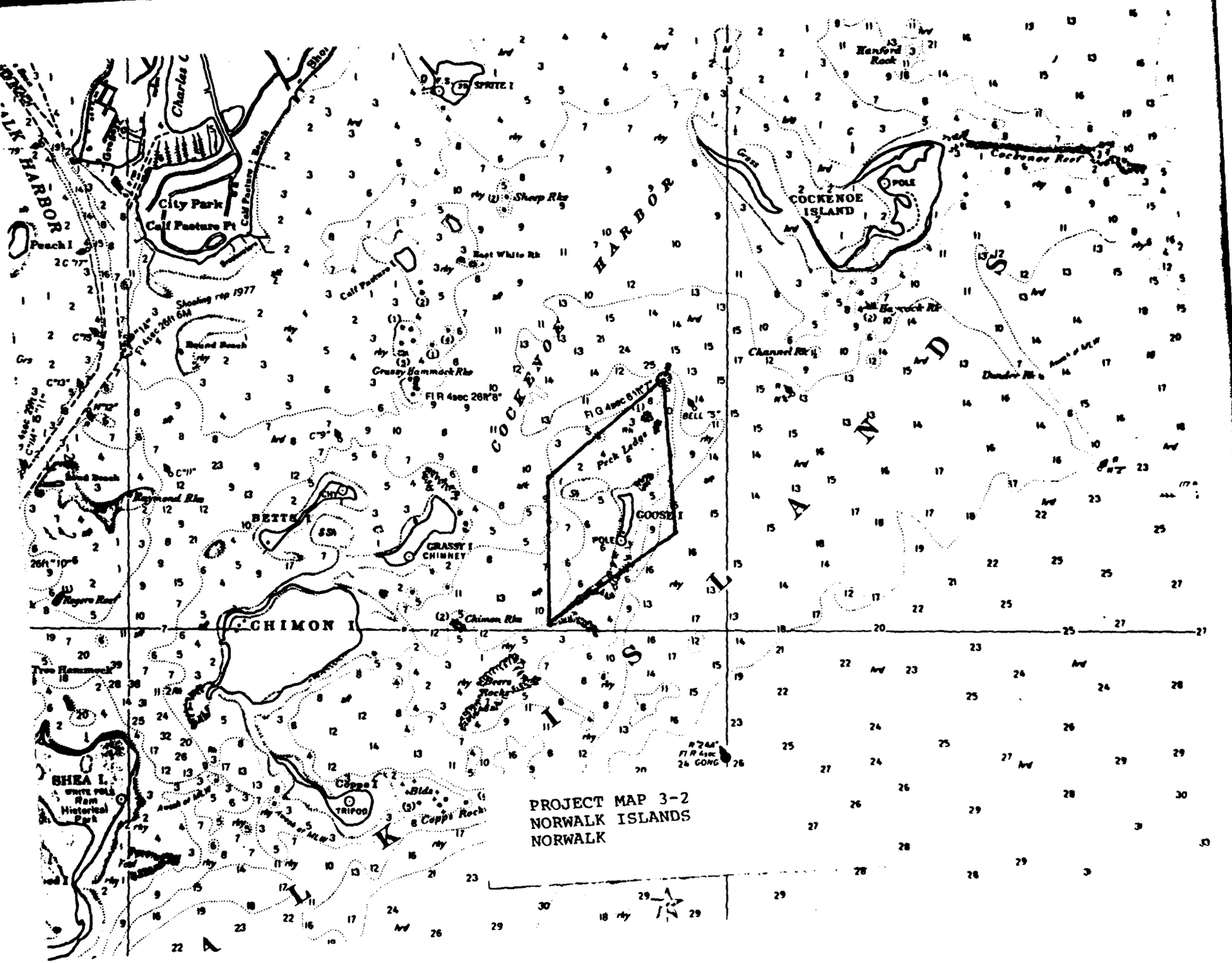
Existing land use on the islands ranges from public recreational space to developed residential shoreline and undeveloped natural areas. Chimon, Goose, Betts and Sheffield Islands have been designated as barrier islands limiting the level of development on these islands. Shea Island, owned by the City of Norwalk, is utilized as a public beach and for nature study. Cockenoe Island is owned by the Town of Westport and utilized for a similar purpose. Chimon Island is privately owned but contains significant wildlife habitat. Protecting this habitat from disturbance associated with the construction and operation of a containment facility would have to be part of any design plan for this area. Shoreline development along this portion of the Connecticut coast is mixed recreational and residential uses. A power plant is also operated on Manresa Island directly to the north of Shea Island.

Distance to dredging activities is conducive to economical operation of a containment facility near Norwalk, a central location in western Long Island Sound. Greenwich and Stamford are located to the west; Norwalk Harbor lies due north; while Bridgeport and Saugatuck are set to the east of this site. Past maintenance dredging projects

have identified Class III sediments in Stamford, Norwalk and Bridgeport while Class II materials have been found in Greenwich and Saugatuck. It is important to note that not all the sediments in the larger urban ports are highly contaminated Class III materials.

Navigational hazards at or near the site would stem from the heavy level of recreational boating, fishing, shellfishing and commercial users of Norwalk Harbor. This factor merits special attention in any further consideration of the Norwalk Islands area.

Public comment received included concern voiced by Assistant Planning and Zoning Director Bennett Boeschenstein and Connecticut Audubon Society President Roland Clement that highly productive shallows near the islands not be disrupted for, or filled by, a containment facility. Both individuals, however, expressed support for the concept of marsh creation through dredged spoil containment along the Connecticut coast.


NORWALK HARBOR
City Park
Calf Pasture Pt
Peach I
Shoaling rep 1977
Calf Pasture Rock
Sheep Rks
East White Rk
Grassy Hammock Rks
FIR 4sec 26ft 8M
COCKENOE HARBOR
COCKENOE ISLAND
Cockenoe Reef
Hanford Rock
Channel Rk
Dunder Rk
FIG 4sec 61ft 7M
Peck Ledge
BETTS I
GRASSY I
CHIMNEY
GOOSE I
POLE
Rogers Rock
CHIMON I
Chimon Rks
Deers Rocks
SHEA I.
Shea Historical Park
Coppe I
TRIPOD
Coppe Rock
PROJECT MAP 3-2
NORWALK ISLANDS
NORWALK

3.3 Thimble Islands, Branford

Topography, land use patterns and environmental concerns make it difficult to propose, even for just the purpose of evaluation in this study, a containment facility in the Thimble Islands. The location selected for assessment here involves an octogon, equal in area to Horse Island, extending eastward from Marine Island into waters ranging in depth from 17 to 24 feet, MLW (see map 3.3).

Biological productivity is said to be high in the area although detailed scientific studies are not readily available. Productivity may be affected by the combination of deep water, strong currents and sewage discharges from inhabited islands in the archipelago. Shallows around individual islands are limited, but would be expected to be areas of increased productivity.

Shellfish concentrations are found throughout the islands according to local oystermen. The Thimbles are used for recreational clamming on a seasonal basis and the islands are regarded as a good lobstering ground by state officials. A small oyster business operated in and around the island for many years, but became unprofitable, perhaps due to economies of scale and limitation on boat size imposed by physical characteristics of the area.

Finfish concentrations vary according to the season. State wildlife officials say the Thimbles provide a good bass fishing ground. The area is frequented by recreational fishermen during warmer weather.

Size of the potential containment facility would be limited by proximity of neighboring islands, depths in excess of 30 feet, and height limitations which Thimble Islands' residents would probably seek. A containment facility could be built to protect existing islands and incorporate outcroppings of rock. Such a facility would have depths averaging between 17 and 18 feet (MLW).

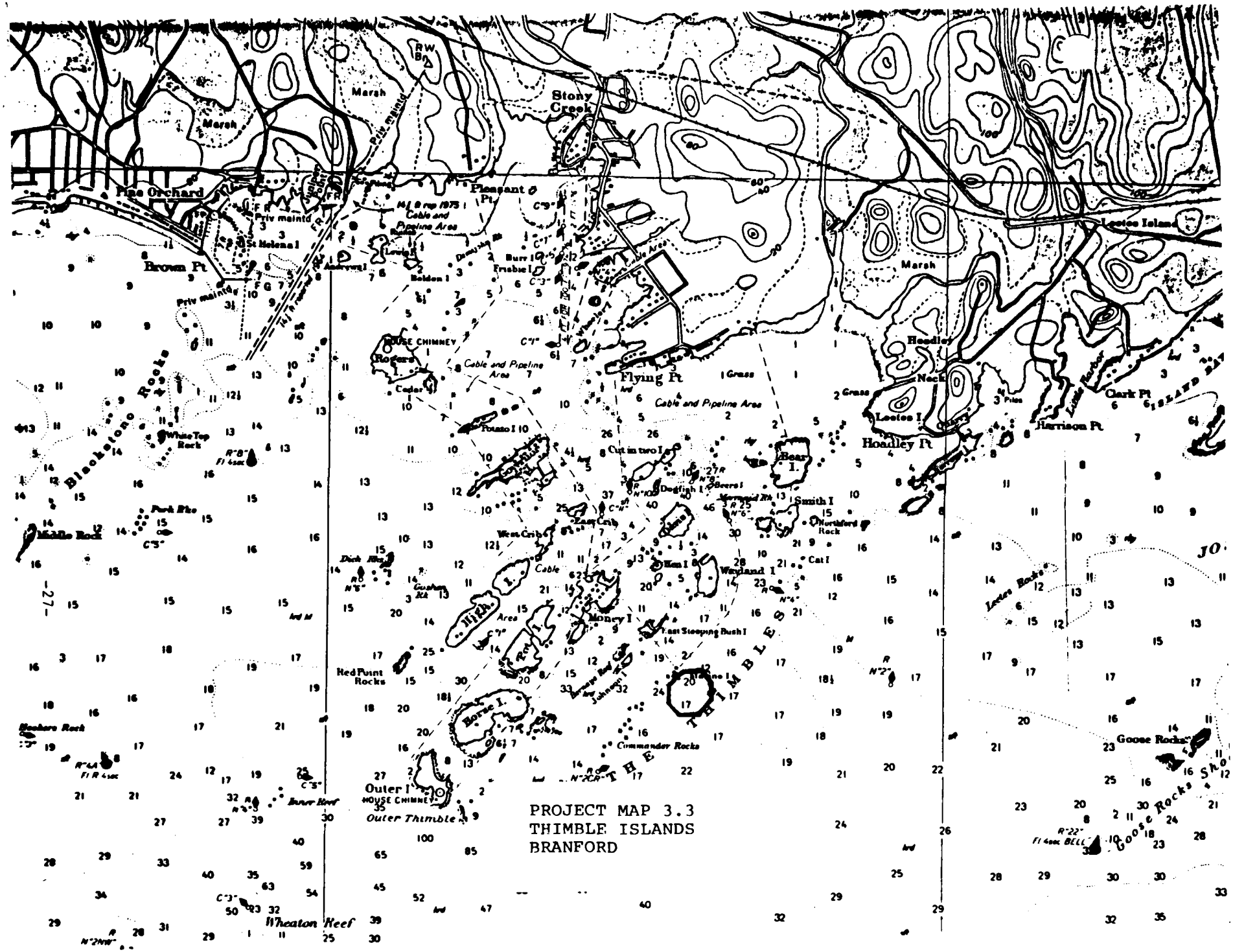
Existing land use at the site would provide a major obstacle to construction of any containment facilities among the Thimble Islands. These islands are privately owned and several are developed for low density residential use. From the air, the islands look like part of the Maine coastline transported to Connecticut. Further, the islands are located off a mainland also developed for residential use. Neither Thimble Island owners nor mainland Branford residents can be expected to support consideration of this area as a containment facility location. These forces would, in all probability, be joined by recreational boaters, shellfishermen, sportsfishermen and conservationists opposed to modification of the island chain.

Distance to dredging activities is not a major factor in evaluating this site. Although the Thimbles are close to New Haven harbor (8.0 NM), the major users of the site would be Branford harbor (4.0 NM), Stony Creek (0.75 NM) and Guilford (4.0 NM). The Thimble Islands are far removed from other major ports in the western Sound and New London, the major eastern Long Island Sound port, is a significant distance from the islands. Thus it appears a containment facility in the Thimbles would serve only New Haven and smaller harbors between the Quinnipiac River estuary and the Connecticut River, an area which may be served by other containment facilities.

Navigational hazards in this area are related to the heavy use of the Thimbles for recreational boating as well as strong tidal currents which run through the area. The archipelago is dotted with outcroppings of rock and navigational aids designed to prevent boating accidents. The Thimbles, then, appear to be an area of higher than average navigational hazard without adding additional hazards.

Public comment has been swift and sure in opposition to consideration of the Thimbles as a containment facility location. Comments

against this location came from such diverse sources as the chairman of the Port Development Committee of New Haven's Chamber of Commerce to a local school girl whose letter was published in a local newspaper, the Branford Review. Informal discussions with area residents reflect vehement opposition to this concept which would probably lead to widespread public criticism and legal action.



PROJECT MAP 3.3
THIMBLE ISLANDS
BRANFORD

3.4 Falkner and Goose Islands, Guilford

This island system is located 2.5 NM southeast of Sachem Head. The Falkner Island lighthouse is a familiar landmark in central Long Island Sound. Directly to the west of Falkner is a smaller group of islands known collectively as Goose Island. Goose Island was chosen as the screening site for a diamond shaped design that would roughly measure 700 yards on a side.

Biological productivity of this area is predominately focused on the presence of several shorebird nesting colonies including the common and roseate tern. The subtidal areas are productive reef habitats, but loss of this bottom habitat could be mitigated by the creation of additional rock/reef habitats by the construction of containment bulkheads. The open exposure of the site would require engineering design able to withstand wind generated waves and strong tidal currents.

Shellfish concentrations are not a major concern in this area because of the exposed nature of the site. Though oysters and hard clams are not found in abundance at the site, populations of blue mussels are found. This shellfish species is not considered a major commercial species in the Sound, but this status is undergoing change. However, initial loss of mussel habitat would be replaced in part by the rip-rap of the containment facility.

Finfish concentrations would be affected in small part by the loss of habitat, but that loss should be mitigated by the creation of new reef (rock) habitat. Goose Island site was not identified as a major commercial or recreational fishing site.

Size of the potential facility would be sufficient for consideration. Though the average bottom depth of the area averages some 6-8 feet MLW, the bulkhead design should reflect the need to protect

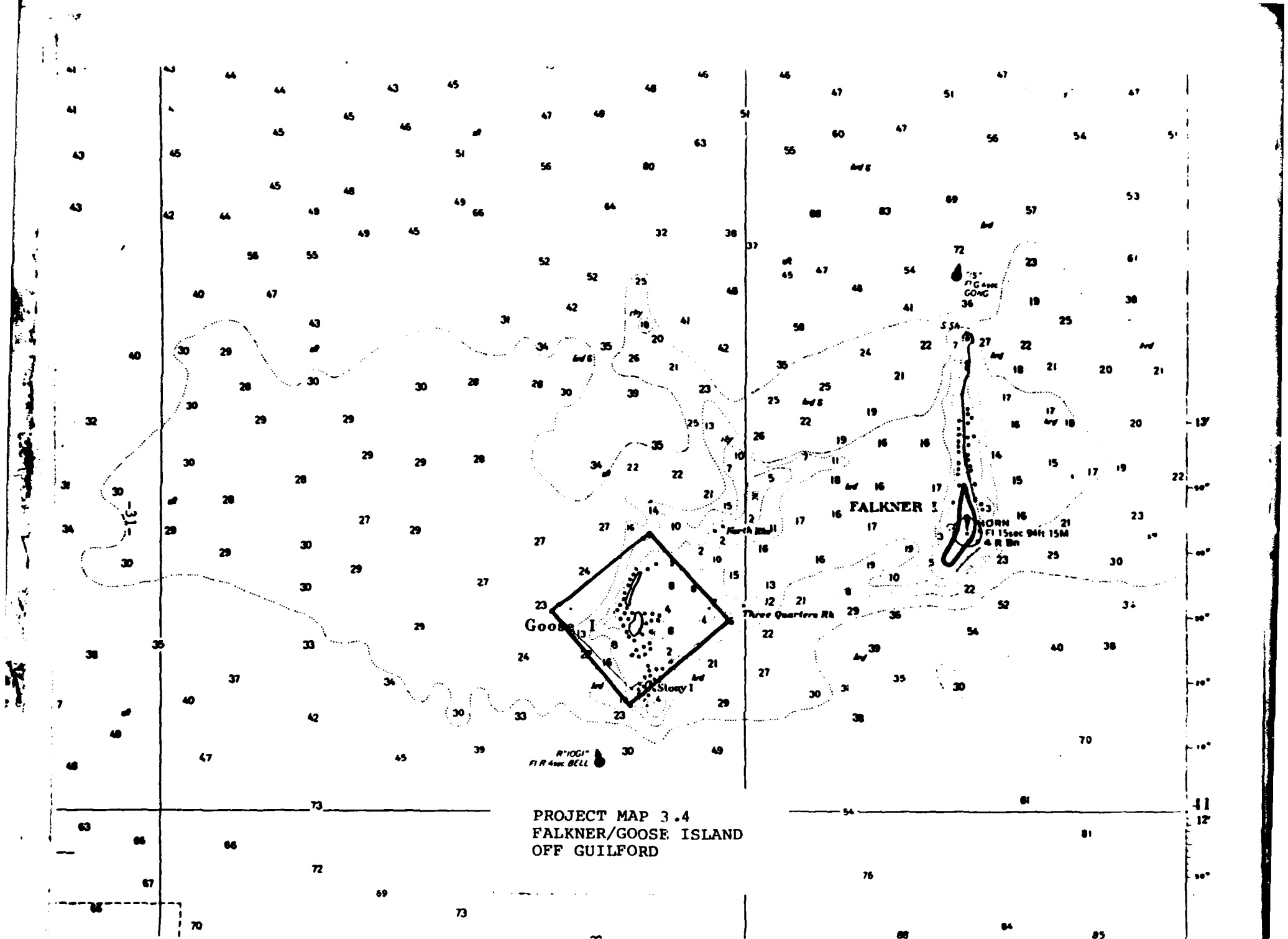
against storm surge and wind generated waves. Because the site is away from the coastal area and the facility should be as visible as possible to navigation, the design would be of higher profile than facilities located in the near shore area.

Existing land use at the site is largely limited to nesting shorebirds on the upland portions of the islands and use of the offshore rocks and outcroppings for roosting and feeding sites. The islands are an important breeding habitat for both common and roseate terns. The remote location of the islands facilitates the terns' successful use of the islands. Any containment site considered for this area should be designed to create additional nesting habitat for terns and other shorebird species.

stance to existing dredging activity is suitable for consideration of several harbor projects. The largest is New Haven harbor, some 12 NM to the west with Branford and Stony Creek harbors 7-9 NM distant. Guilford harbor is directly north of the site and to the east, Clinton is approximately 6.5 NM away. New Haven is an industrial port and one of the largest navigation projects in Long Island Sound. An improvement project currently under consideration for the harbor would generate some 7.8 million cubic yards of material. The other harbors which might utilize the Goose Island site largely contain Class I and II material. The nature of material from New Haven harbor runs the gamut from sandy Class I material in the outer harbor to Class III enriched pockets within the inner harbor and adjacent tributaries.

Navigational hazards inherent at the site are largely related to its open water nature and visability to commercial and recreational craft. Currently, both the islands and adjacent shoals represent similar or greater danger to navigation than the additional use of the site for containment. Properly marked and charted, such a site would pose little or no additional danger to navigation.

Public comment was largely based on protection and enhancement of nesting habitat for shorebirds, in particular, tern species. Fisheries personnel also stated that the use of offshore sites such as Falkner and Goose Island, while posing greater engineering concerns, had less potential impact to the marine enviornment than the location of a similar facility in the nearshore environment. In addition, the loss of bottom habitat would be mitigated by the habitat created by the containment structure.



PROJECT MAP 3.4
FALKNER/GOOSE ISLAND
OFF GUILFORD

3.5 Sixmile Reef, off Clinton

Sixmile Reef is a group of shoals lying approximately 3 NM south of Hammonasset Point and running some 3 NM to the east southeast. The reef is not visible above low tide and at its shallowest, Sixmile reef remains some 19 feet below MLW. The largest segment of the reef was selected for the potential containment site. A trapazoid measuring 1,100 yards on its southern border and some 700 yards on a side would cover a surface area of approximately 120 acres (see map 3.5).

Biological productivity of the area is significant with the reef providing good ground for recreational fishing and lobstering.

Shellfish concentrations known for the area are predominantly lobsters. According to fishermen and marine fisheries officials alike, Sixmile Reef is known to be good habitat.

Finfish concentrations are located on and near the reef and the Sixmile Reef is a popular recreational fishing spot. As with all reef and shoal habitat in the region, the species and concentration, along with fishing effort vary on a seasonal basis.

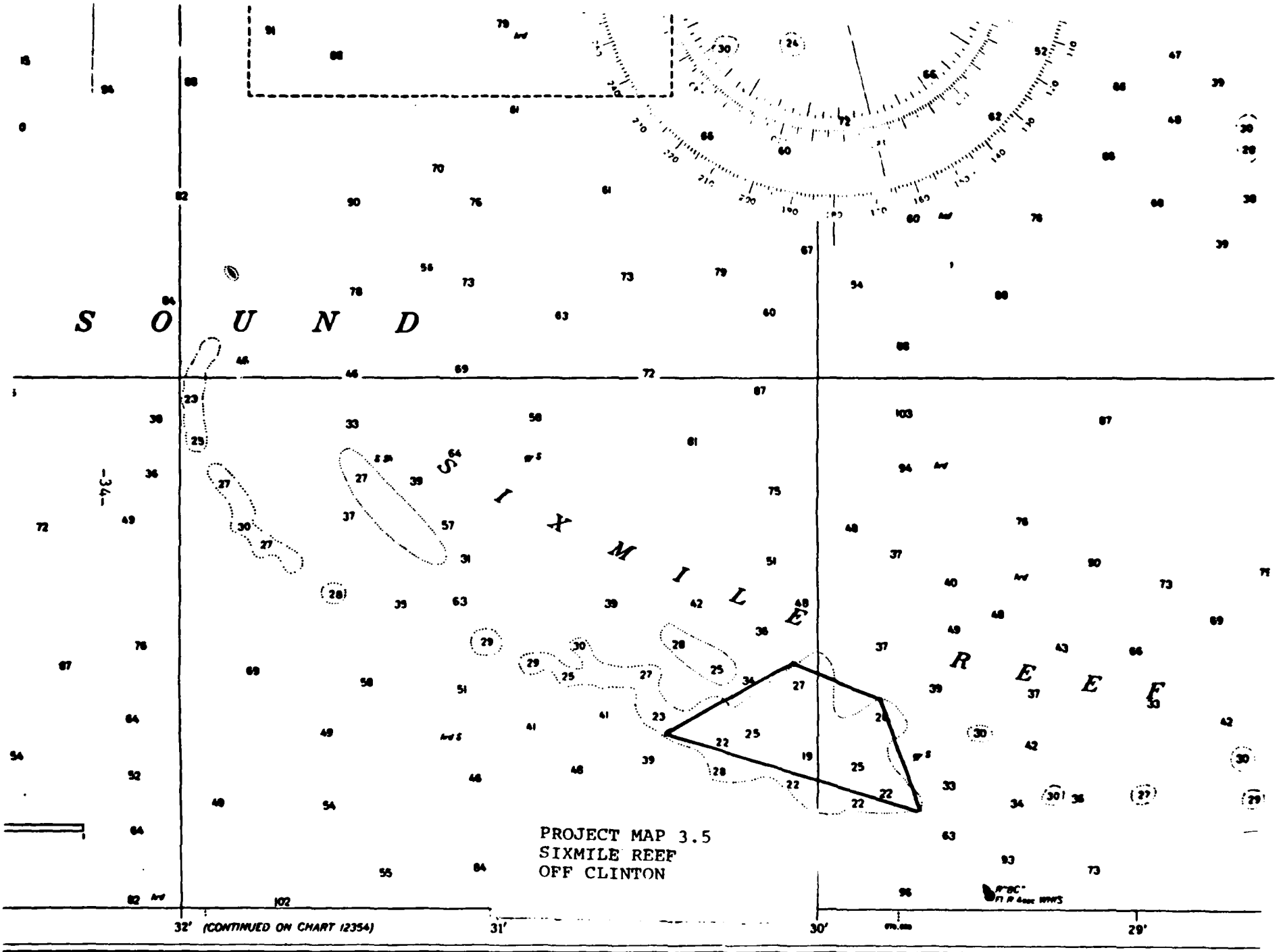
Size of potential containment facility would not be a factor in determining the site feasibility. However the reef lies in relatively deep waters (averaging 25-28 feet MLW) and the area is known for strong tidal currents. Sixmile Reef is further exposed to full wave and wind impact during storm action. Containment structure costs would be significant.

Existing land use at Sixmile Reef is confined to recreational sportfishing and commercial take of lobsters. Because the reef is located in deep waters, the vast majority of vessels can safely navigate the surface waters over the reef.

Distance to existing dredging activity makes the site a potential disposal site for Clinton (4.4 NM); Old Saybrook (7.2 NM); and the Patchogue River, Westbrook, (5.2 NM). These harbors are relatively small recreational harbors with Class I and Class II material. Large industrial ports lie further to the west and east. Other potential containment sites are in closer proximity to these harbors: Duck Island Roads, Falkner Island, and the Clinton Harbor site.

Navigational hazards at the site would be significant as a result of creating land where historically there has been relatively deep water. Because of the depth of the site, Sixmile Reef does not currently present a navigational hazard to the vast majority of vessels. Therefore, high visibility, good charting, and a great deal of boater education would be required to ensure that the containment island did not pose a significant hazard, especially during periods of reduced visibility during fog and storm conditions.

Public comment has been split. The Town of Clinton's Harbor Commission endorses study of the site, while other sources have expressed concern that the site is deep, washed by strong currents, and utilized by an active lobster and sportfishing industry.



PROJECT MAP 3.5
SIXMILE REEF
OFF CLINTON

3.6 Duck Island Roads, Clinton

The hypothetical containment facility considered here stands at the western end of the study area and does not affect the harbor of refuge created by attaching two breakwaters to Duck Island. The facility considered in this study would be an equilateral triangle some 700 yards on a side extending eastward from the southern tip of Stone Island over to East Ledge, running southwest back to the Kelsey Point Breakwater, and then running northward along the existing breakwater to the terminus of Stone Island (see map 3.6).

Biological productivity may be affected on a seasonal basis by winter storms and accompanying winds from the northeast. Kelsey Point Breakwater is believed to have increased habitat for blackfish and lobster. Biological productivity could be increased by construction of additional rip rap bulkheads surrounding the containment facility. Further, the finished facility could be designed to serve as a new habitat for least terns, a species considered by ornithologists as threatened in the Long Island Sound region. The species has been known to nest on nearby Menunketesuck Island.

Shellfish concentrations are believed to include oyster beds and lobster grounds in the area. Additional study would be required to document populations of these species and determine the net impact of a facility at this site.

Finfish concentrations include blackfish attracted to the Kelsey Point Breakwater along with other species which move through the site on a seasonal basis. Additional study is merited to determine if construction of a containment facility would improve or diminish finfishing in the leeward area between Kelsey and Hammock Points.

Size of the potential containment facility should be limited to preserve the scenic vista of Kelsey and Hammock Point residents.

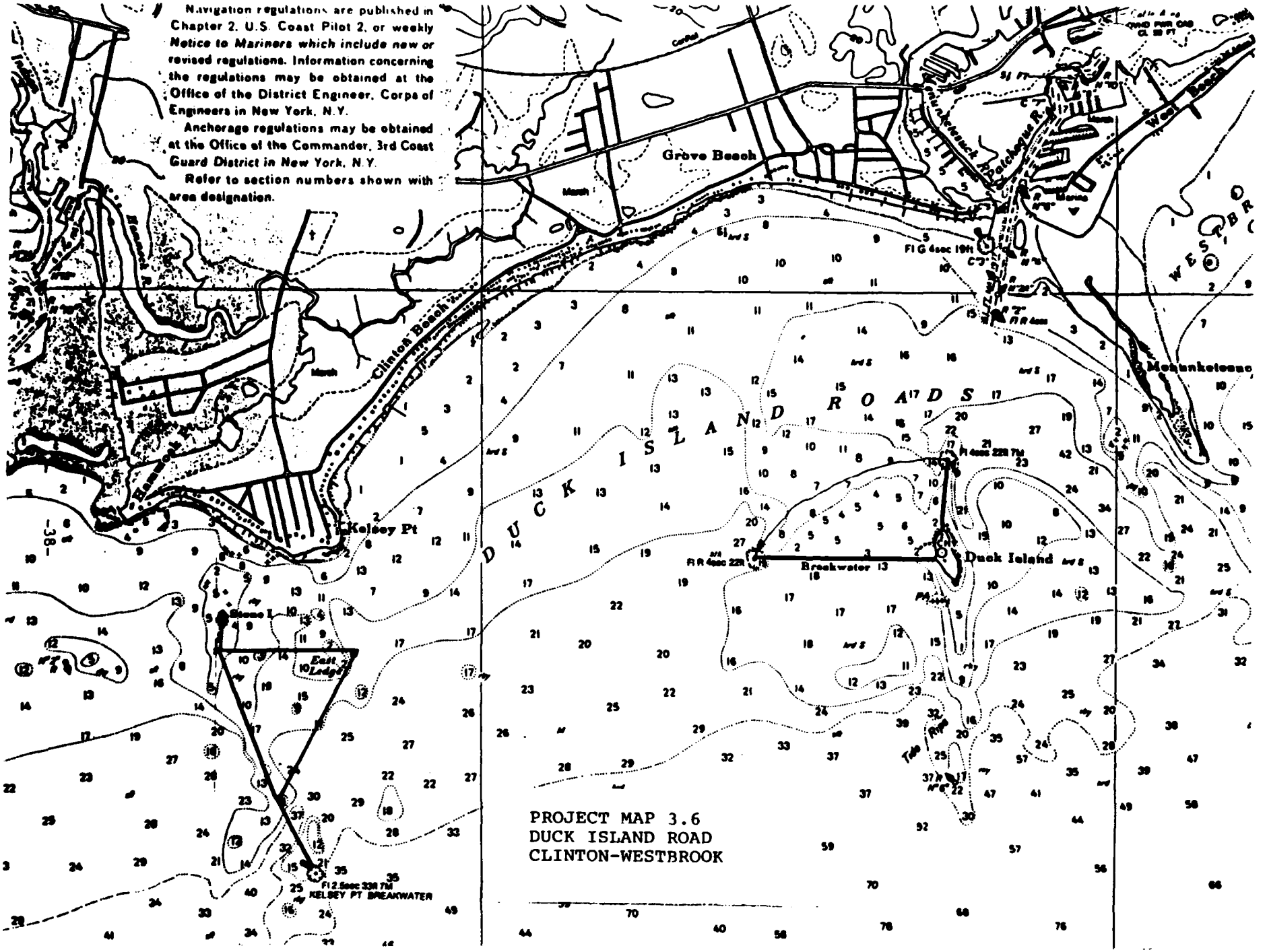
This concern could limit elevation above sea level and lead to use of construction materials similar to those utilized in building the existing breakwater. Depths in the area range from 10 to 19 feet, providing sufficient capacity without requiring a high above-water profile. Concerns of coastal residents and a desire to create additional sheltered anchorage for boaters led the study staff to limit the facility's northern boundary to the southern tip of Stone Island. The southern terminus of the facility was determined by the 30 feet contour along the breakwater. If this limitation can be overcome, the facility could be enlarged to run from East Ledge to the southern end of the breakwater.

Existing land use at the site involves use of water east of the breakwater for mooring of recreational boats and fishing during the warmer months. The shoreline facing this area is developed for residential use. Additional study is required to determine the degree of protection from winter storms the facility would provide to coastal land owners from Kelsey to Hammock Point. Further, the final use of the containment facility would be a clear concern of residents and officials of both Clinton and Westbrook. Development of wildlife habitat similar to Menunketsuck Island could prove an important consideration in evaluation of a containment facility proposal.

Distance to dredging activities would be attractive to several small recreational ports in the region: to the west Clinton (1.0 NM) and Guilford (7.25 NM), and to the east Westbrook Harbor (1.25 NM) and Old Saybrook (5.25 NM). The dredged material from these harbors, as a result of their largely recreational nature, is largely comprised of Class I material with some Class II sediments. The industrial ports of New Haven and New London are both outside convenient range of this facility.

Navigational hazards in the area appear to be minimal as the study site is surrounded by deep waters on all three sides and the pre-existing breakwaters of the Duck Island Roads project.

Public comment has centered on expressions of opposition to any modification of the harbor of refuge between the breakwaters attached to Duck Island.


Navigation regulations are published in Chapter 2, U.S. Coast Pilot 2, or weekly Notice to Mariners which include new or revised regulations. Information concerning the regulations may be obtained at the Office of the District Engineer, Corps of Engineers in New York, N.Y.
Anchorage regulations may be obtained at the Office of the Commander, 3rd Coast Guard District in New York, N.Y.
Refer to section numbers shown with area designation.
Grove Beach
Clinton Beach
Kelsey Pt
DUCK ISLAND ROADS
Duck Island
Brookwater 13
Stone L
East Ledge
Fl 2.5sec 33ft 7M
KELSEY PT BREAKWATER
Fl G 4sec 19ft
Menunketesuc
West Beach
PROJECT MAP 3.6
DUCK ISLAND ROAD
CLINTON-WESTBROOK

3.7 Bartlett Reef, Waterford

Bartlett Reef is located off Waterford and New London. A long slender reef, the northern tip lies approximately 850 yards off Seaside Point and runs 1.25 NM to its southern terminus. With the exception of a few rock outcroppings and the Bartlett Reef Light at its southern tip, the reef lies unexposed at low tide. The main body of Barlett lies in 6-16 feet of water MLW. For the purposes of this study, a site including the southern third of the reef was selected, measuring between 800 and 1,300 yards on a side (see map 3.7).

Biological productivity of Barlett Reef is considered high and is reflected in a major recreational finfishery and lobster fishery in the area. This productivity would be significantly altered by construction of any containment facility.

Shellfish concentrations are comprised primarily of lobster with the blue mussel the second most important shellfish resource. According to marine fishery officials, Bartlett Reef is a productive lobster area, and while some mitigation would occur for the loss of bottom ground with the construction of rock breakwaters for the containment island, fisheries personnel were concerned for overall impact to the shellfish and finfish populations.

Finfish concentrations are also found in the reef. A productive recreational fishery for species including striped bass, bluefish, fluke and occasionally cod occurs in the area.

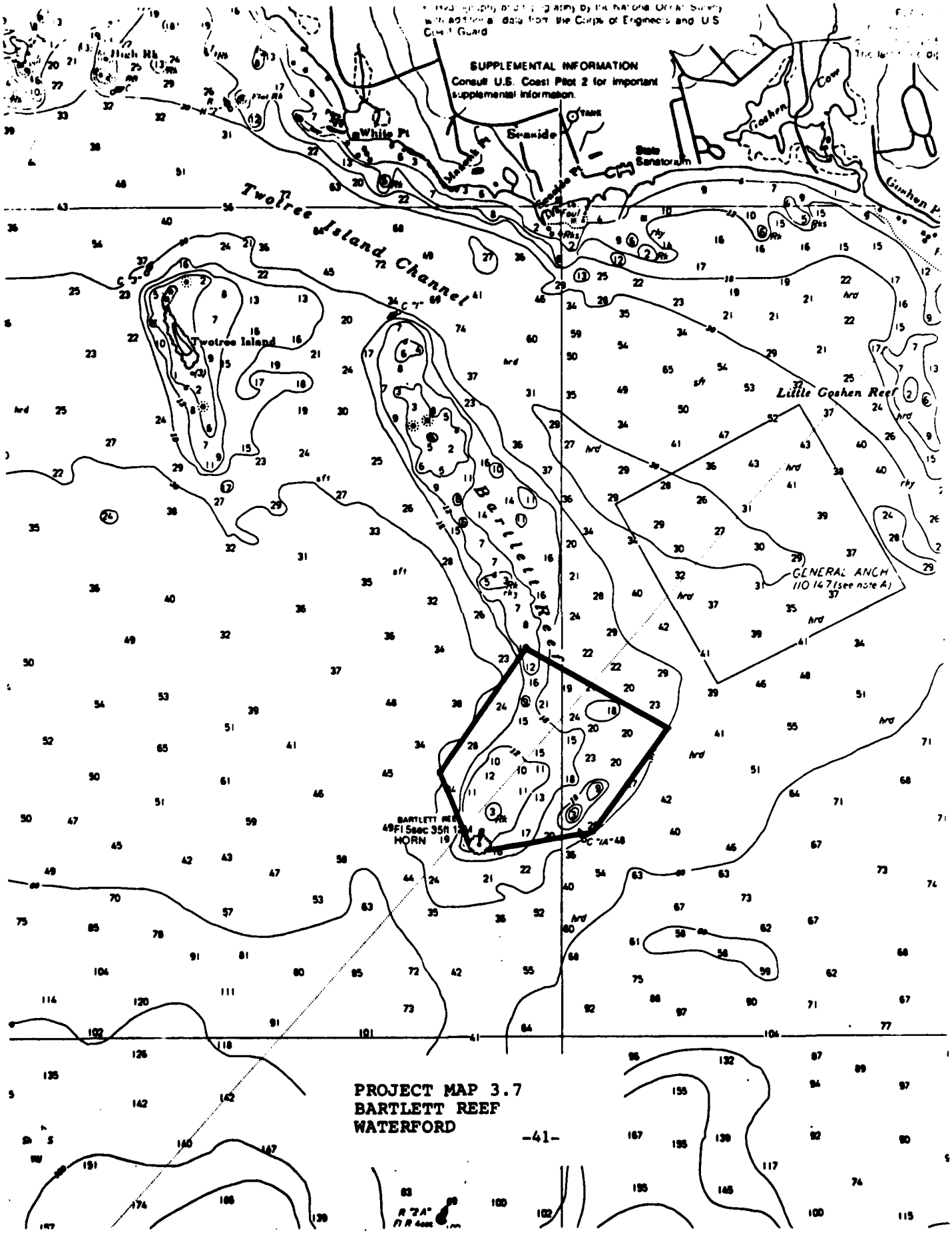
Size of containment facility would be sufficient to meet spatial and depth guidelines. A containment facility of some 120 acres could be constructed in 10 to 24 feet of water MLW. The site would be keyed off the existing Bartlett Reef Light.

Existing land use is limited to the reef's use as popular recreational fishing and lobstering area. The rock outcroppings and navigational aids are also used by variety of coastal birds for feeding and roosting.

Distance to existing dredging activity makes the Bartlett Reef site a potential disposal site for New London (approximately 3.0 NM northeast); Fishers Island (5.0 NM to the east); and Niantic Bay (3.25 NM to the west northwest). Fisher's Island and Niantic harbor are relatively small projects with clean materials, while New London is one of the largest projects in Long Island Sound. The Thames is also the major strategic harbor in the region for the Navy and Electric Boat. Dredged material from the industrial portions of the Thames are contaminated with a wide range of pollutants and fall under Class III.

Navigational hazards at or near the site would not be increased significantly by the presence of a containment site. Currently, Bartlett Reef poses a hazard that would not be increased if the new structure were properly marked by aids to navigation and charted. In fact, such a structure properly designed might offer a harbor of refuge in its lee. Placement of the facility in proximity to the mainland could produce stronger tidal currents and shoreline erosion.

Public comment has largely centered on concern that a containment facility site on Bartlett Reef would impact existing finfish and lobster habitat and the recreational and commercial fisheries that utilize these resources. Unlike offshore areas, it was felt that the potential benefits of the containment would not be worth the loss of bottom habitat on Bartlett Reef. Engineering concerns would be similar to offshore islands and shoals as a result of the exposed nature of the reef and strong tidal currents.



PROJECT MAP 3.7
BARTLETT REEF
WATERFORD

3.8 Stratford Shoals Middle Ground, off Stratford

The "Middle Ground" is a shoal located midway between Stratford Point to the north (5.5 NM) and Old Field Point on Crane Neck, Long Island to the south (5.0 NM). The 60 foot high beacon that marks the site is a familiar landmark to Long Island Sound boaters. The beacon structure and rip rap base are the only portion of the shoals that rise above mean low water. Consideration of the site for containment would likely encompass the beacon with the containment walls. The site chosen is triangular measuring between 700 and 1,200 yards on a side.

Biological productivity is high with the Middle Ground representing good reef/shoal habitat for a range of finfish and shellfish species. The site is a popular fishing area, particularly for recreational fishermen from Connecticut and Long Island.

Shellfish concentrations noted for the area apparently consist largely of a sizable lobster population. As a result of the exposure and depth, no significant populations of commercially significant bivalves were identified.

Finfish concentrations were representative of shoal areas in Long Island Sound. As already indicated, the Stratford Shoals are a popular fishing site for recreational fishermen. The uneven nature of the bottom topography would limit commercial dragging for finfish.

Size of a potential containment facility would be governed by the site's distance from dredged material sources and the need to engineer the bulkheads for exposure to waves and tidal currents. The water depth around the Middle Ground beacon ranges from 3 to 29 feet. As with any containment site placed in the open waters of the Sound, the design of the containment facility would likely necessitate high bulkhead walls to protect dredged materials against wind and wave action while

also affording the site greater holding capacity and increased visibility to vessel traffic.

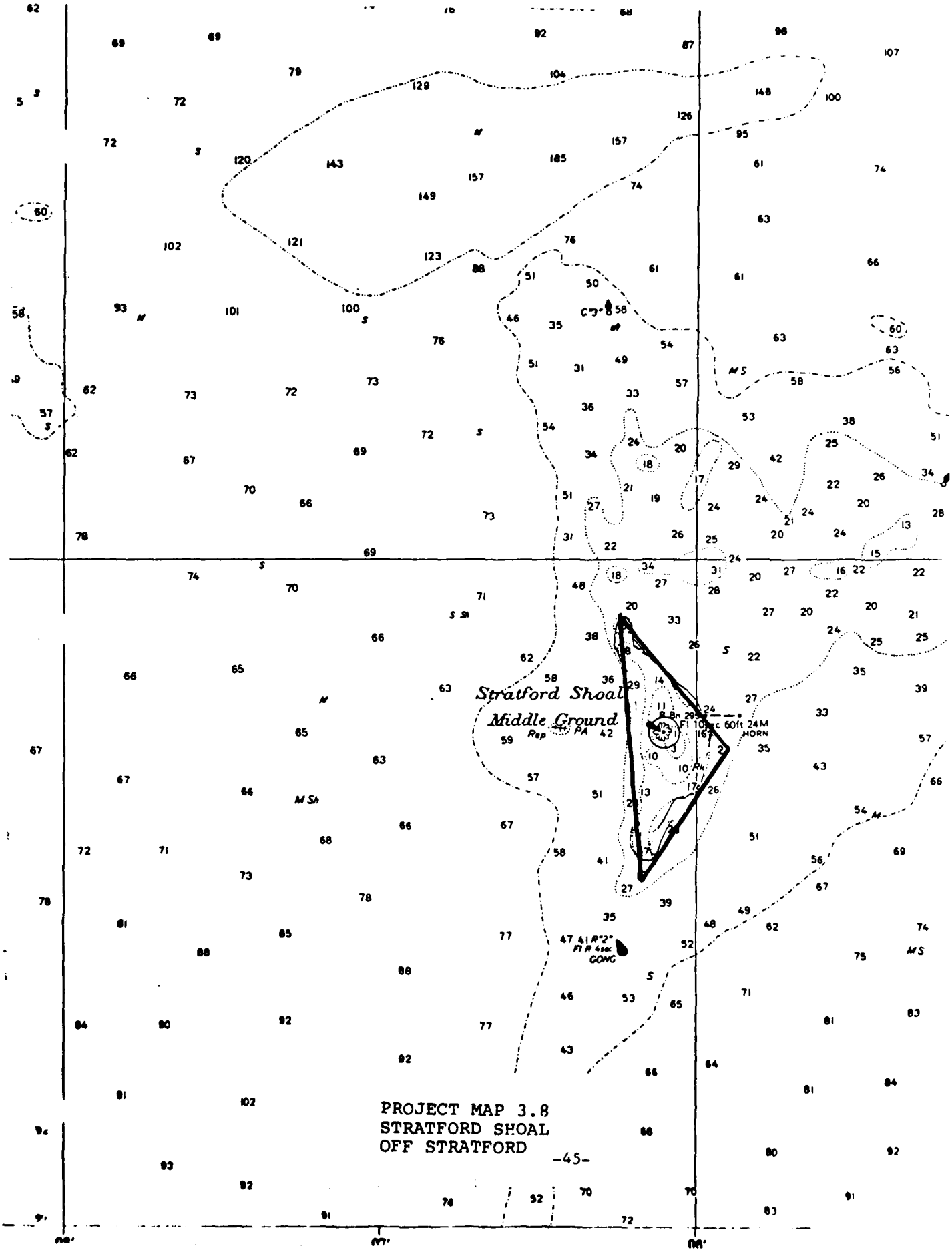
Existing land use is limited to the site's use for navigation aids and the adjacent water's use as a fishing site.

Distance to existing dredging activity makes this site perhaps the most "regional" site, in that it could be considered for use by both the north and south shores of Long Island Sound. Port Jefferson harbor lies 5.25 NM to the south while Bridgeport and Black Rock harbors are located approximately 7.0 NM to the north. All three harbors are active commercial ports. Port Jefferson, as result of its sandy sediments, is largely considered a Class I harbor while Bridgeport and, in particular, Black Rock, have highly contaminated sediments within their harbors that would be prime candidates for containment.

Navigational hazards at or near the Middle Ground would not be increased by the siting of a containment facility since the area already represents a navigational hazard to larger vessels. Proper marking and charting of a containment site would not increase existing navigational hazards. Obviously the mass of the above-water hazard would be increased. A regularly scheduled ferry service between Port Jefferson and Bridgeport as well as trans-Sound traffic do pass close to the Middle Ground.

Public comment largely focused on the use of the area as a popular fishing area, particularly for recreational fishermen. As with other open water sites, marine resources officials expressed an opinion that while the engineering costs and requirements were greater as a result of the exposed nature of the site, offshore areas such as Stratford Shoals could be utilized as containment areas with less impact to known shellfish and finfish resources than similar inshore areas. In

addition, the creation of upland sandy/rocky habitat at the Middle Ground would represent new nesting habitat for a variety of shorebirds, most importantly terns.



PROJECT MAP 3.8
STRATFORD SHOAL
OFF STRATFORD

3.9 Menunketesuck Island, Westbrook

Although not included in the original study proposal, this site was reviewed at the request of the Corps of Engineers. The facility considered in this study extends from the mainland southeast to the tip of Menunketesuck Island to create a penninsula (see map 3.9).

Biological productivity of mudflats between the existing island and Connecticut shore are believed to be high. Menunketesuck Island is described as a nesting site for numerous shorebirds by the Westbrook Conservation Commission. A threatened species, though not federally listed, the least tern, is known to nest in the area. It is likely this habitat would be disrupted and the terns forced to move elsewhere if a containment facility was built at this site.

Shellfish concentrations are reported to be high by local officials. The hard clam, soft shell, and scallop are among important species.

Finfish concentrations are reported significant along the Westbrook Harbor side of the island and along the mudflats during high tides. The area is a popular area for recreational fishing.

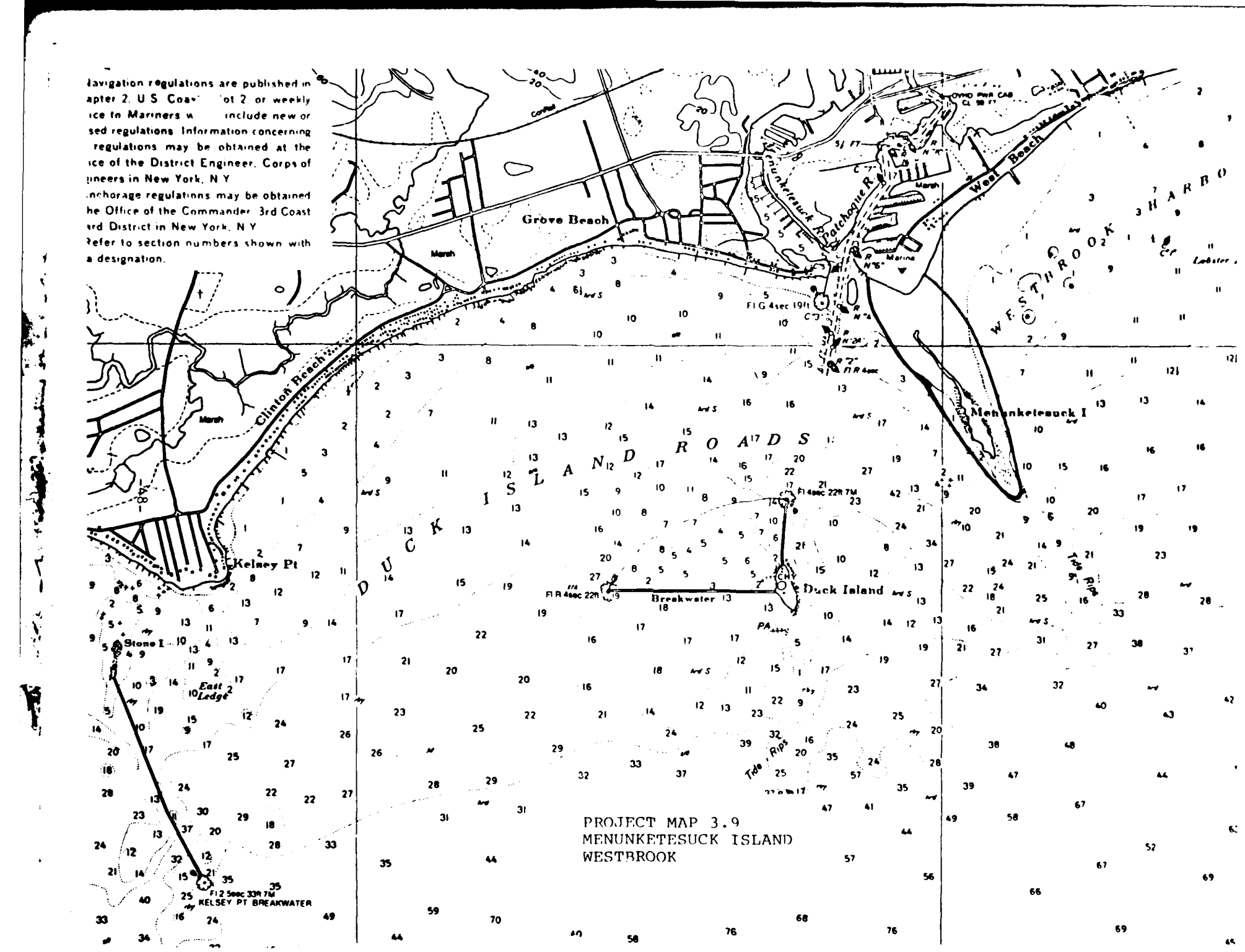
Size of a potential containment facility would be severely limited by the shallow depth of the area to be filled (less than 3 feet). Construction of an elevated structure to increase containment area would likely generate opposition from local land owners and town officials.

Existing land use at this site is largely confined to use of the island as shorebird nesting habitat. This habitat would be severely disturbed by construction of a containment facility. Connecting the

island to the mainland would open the area to numerous predators and increase human activity. Even temporary disruption of this island during construction of the facility would also affect nesting species currently using the area.

Distance to dredging activity is virtually identical to that described for the Duck Island Roads site.

Public comment included concern for the potential loss of habitat voiced by the Westbrook Conservation Commission. The presence of endangered species on the island combined with the site's proximity to two town beaches could be expected to generate significant public discussion should this site be considered further.


Navigation regulations are published in
apter 2, U S Coas' ot 2 or weekly
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regulations may be obtained at the
ice of the District Engineer, Corps of
ineers in New York, N Y
nchorage regulations may be obtained
he Office of the Commander, 3rd Coast
rd District in New York, N Y
Refer to section numbers shown with
a designation.
Grove Beach
Marsh
Clinton Beach
Marsh
Kelsey Pt
Stone I
East Ledge
FI 2 5sec 33ft 7M
KELSEY PT BREAKWATER
DUCK ISLAND ROADS
Breakwater
FI R 4sec 22ft
Duck Island
Patchogue R
Patchogue
Marina
West Beach
Menunketesuck I
WESTBROOK HARBOR
Tide Rips
PROJECT MAP 3.9
MENUNKETESUCK ISLAND
WESTBROOK

3.10 Other locations

Three other areas were advanced for consideration by the Corps during this study. A brief description of each project follows:

* Milford Point, Milford, proposed by Stratford officials, appears to be eliminated from consideration as a potential containment facility as a result of: 1) the area's high wildlife habitat value; 2) the esthetics of the existing barrier beach/salt marsh environment; and 3) recently enacted legislation designating Milford Point as a Connecticut barrier beach. The beach, marsh and mudflats of this area are heavily utilized by a variety of shorebird species including least terns. Because of the high quality of the existing system, habitat alteration through marsh creation would not be viewed as beneficial. In addition, the exposed nature of the site would pose erosion and stress problems for a marsh creation project.

* New London Harbor, New London, proposed by municipal officials, a five acre site abutting relocated Amtrak tracks just upriver from Shaw Cove. Depths in this area appear to range from five to eight feet. The limited depth and surface area available at this site appears to be insufficient to justify construction of a containment facility.

* Penfield Peninsula, Fairfield, proposed by Fairfield officials as a storm protection measure for adjacent coastal areas. Construction, as proposed by municipal officials, would involve creating a narrow peninsula extending from Shoal Point out to include exposed rocks known as the "Cows." This project would replace oyster grounds with a different habitat. It is unclear weather the design advanced by Fairfield, which is focused on storm protection, is economically feasible for consideration in construction of a containment facility. However, the proposal ("Proposal to Rebuild Penfield Reef as a Dredge Spoil/Peninsula Island for the purpose of Stabilizing the Fairfield, Connecticut,

Shoreline," Fairfield Conservation Commission, 1982), may merit consideration as a dual purpose (i.e.: containment and storm barrier) project.

4.0 Site Specific Findings

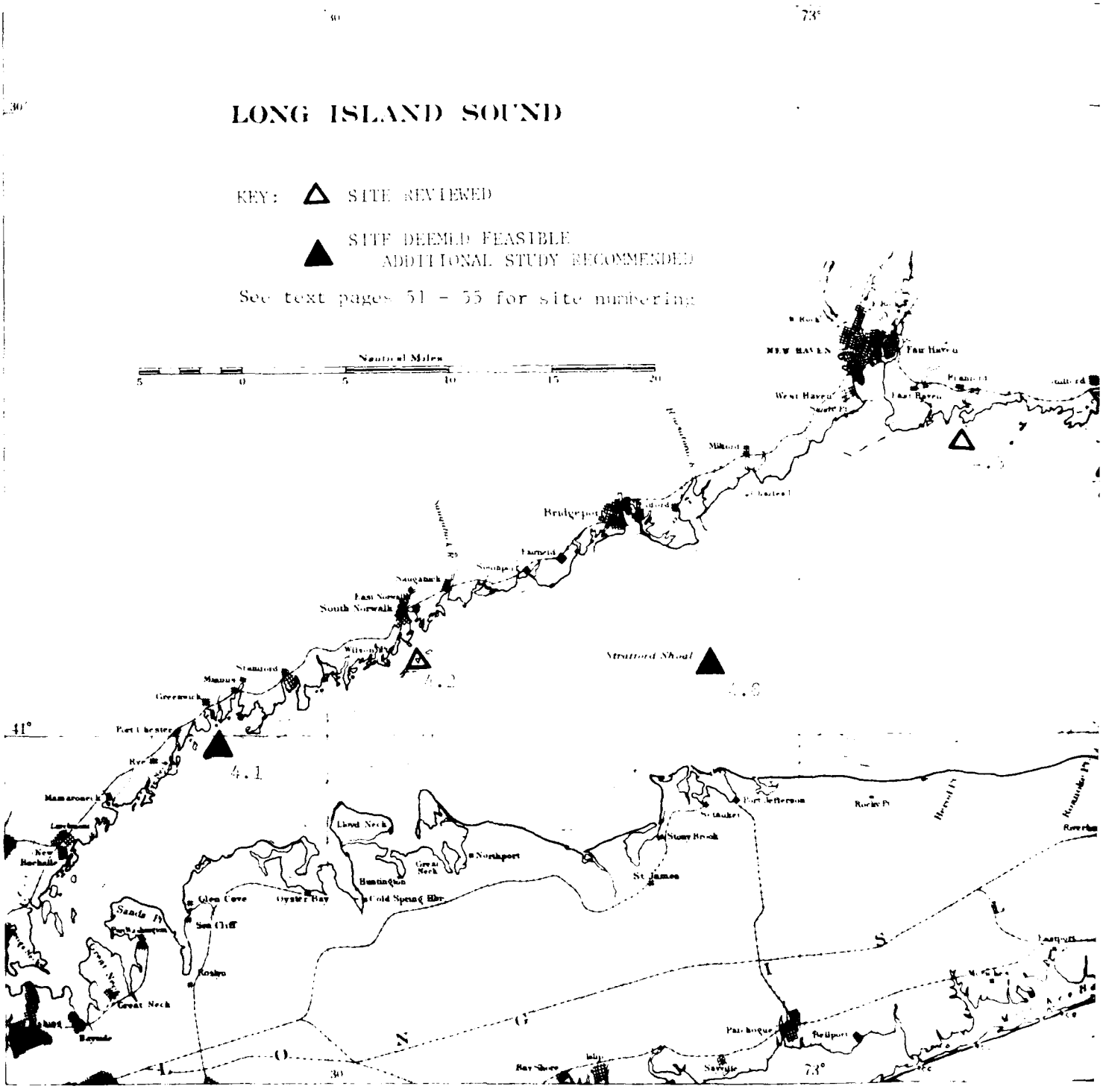
This preliminary screening study is designed to determine the feasibility of constructing containment facilities at specific locations along the Connecticut coastline. Findings in this report indicate whether a containment structure is practical for a site and identifies areas warranting additional detailed study. Measures which might mitigate negative environmental impacts along with factors which merit rejection of a site from further consideration are discussed in this section of the report (see figure 4.0 for regional location of study sites).

4.1 Captain Harbor, Greenwich

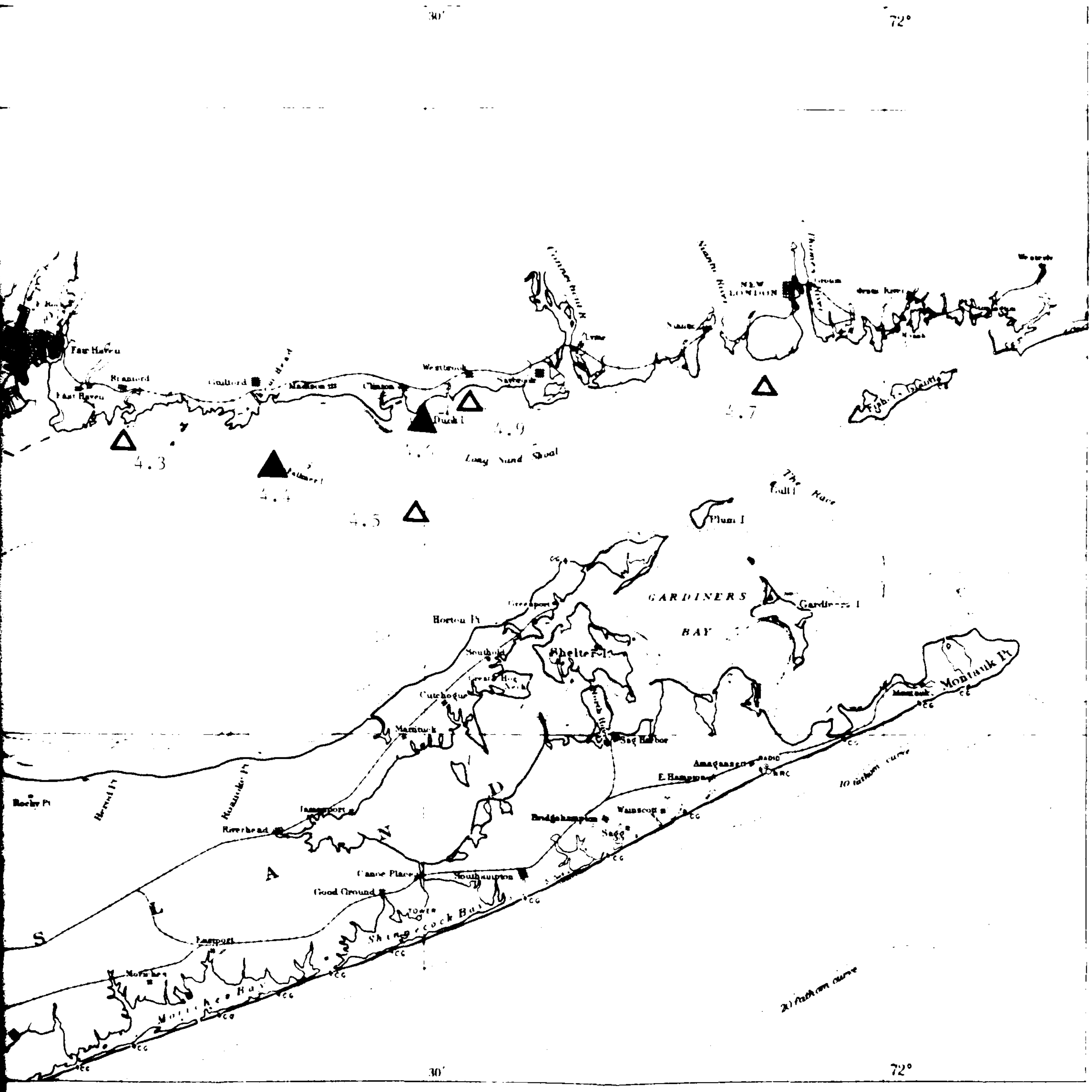
This site is technically feasible, although opposition from coastal residents reduces the practicality of this location. Captain Harbor is the best site in western Long Island Sound of those proposed for review in this study. As such, it merits some additional study to determine local concerns and gauge environmental impact. However, the Corps should consider whether a site in Westchester County, or elsewhere in New York State, could serve the western Sound with less potential disruption and greater benefits to the region.

4.2 The Norwalk Islands, Norwalk

Biological productivity, high concentrations of shellfish and finfish, along with the recreational land use patterns prompt rejection of this site from further consideration. Navigational hazards could be increased in this busy boating area by a containment facility. Further, recently enacted barrier island protection legislation may bar construction of a containment facility in much of this archipelago.



MAP 4.0 - LOCATION MAP FOR CONTAINMENT SCREENING SITES


30'
72°
4.3
4.4
4.5
4.7
4.9
Long Sand Shoal
Plum I
GARDINERS
BAY
Horton Pt
Sag Harbor
Montauk Pt
Riverhead
Good Ground
Eastport
10 fathom curve
20 fathom curve
A
L
S
N
D

SITES

4.3 Thimble Islands, Branford

Although technically feasible, public comment received during this study reflects strong community opposition which renders utilization of this area impractical as a containment facility site. Biological productivity, shellfish concentration, finfish concentrations, surrounding land use patterns and navigational hazards are among the factors supporting rejection of this location from further consideration.

4.4 Falkner/Goose Island, off Guilford

This site is feasible and merits further study by the Corps of Engineers. Additional study is needed to determine the net impact to the marine environment as a whole from construction of the facility. This evaluation should balance the loss of bottom and rock habitat covered by the facility against new rock habitat and wildlife areas created through construction of the facility. Use of the completed artificial island for wildlife habitat, nature study and passive recreational activities by boaters should be considered in studying this site. However, the need for suitable undisturbed shorebird nesting habitat, especially terns, should be given top priority at this site. Special attention should be paid to the engineering design proposed for this facility to determine the cost-effectiveness and economic feasibility of this location as result of its remote siting and exposed location.

4.5 Six Mile Reef, off Clinton

This site should be rejected from consideration due to high biological productivity; the potential for creating navigational hazard; and cost concerns related to construction expense in deep water.

4.6 Duck Island Roads, Clinton

This site merits a high priority in further study by the Corps. Potential benefits from the containment facility include: increased marine biological productivity; creation of additional nesting habitat for important shorebird species; potential protection of shoreline property; and creation of additional sheltered mooring areas for recreational boaters. Impact of the facility on the scenic vista of shoreline property owners should be mitigated by limiting elevation of the completed containment facility; reserving the completed facility for use as wildlife habitat with minimal human use; and restricting the northern boundary of the site to that considered in this report. This restriction on the northern limit of the facility may also be an important consideration for recreational boaters and fishermen. In evaluating this site, special attention should be paid to assessing net environmental impact; effect on shoreline erosion; and design considerations. A special effort should be made to inform and involve Clinton residents and officials in this process.

4.7 Bartlett Reef, Waterford

High biological productivity, potential for creating navigational hazards, strong currents and a significant potential for erosion combine to make this location unsuitable for further consideration.

4.8 Stratford Shoals, off Stratford

This site is feasible and merits further study by the Corps to assess the net environmental effect of containment facility construction. As in the case of Falkner's Island, special attention should be paid to engineering design, cost-effectiveness, and plans for final use.

4.9 Menunketesuck Island, Westbrook

Limitation on size and capacity combined with disruption of habitat utilized by shorebirds rule out further consideration of this site. High biological productivity, significant shellfish concentrations, and proximity to municipal beaches support this recommendation.

4.10 Other sites

* Milford Point, Milford is ruled out from further consideration by biological productivity, importance of wildlife habitat, and barrier island legislation recently enacted by Congress.

* New London Harbor, New London may merit further consideration as a port improvement project. However, limited capacity makes the economic of this site as a containment facility questionable.

* Penfield Reef, Fairfield merits further study as a storm protection structure. It is not clear that a structural solution to highly developed coastlines subject to storm related flooding will offer any more than temporary relief. There is also concern as to the project's impact on area oyster beds. The economics of construction appear to rule out consideration of this site as purely a containment project.

5.0 Study Summary

Construction of any containment facility along the coast inherently involves replacement of one habitat with another. Whether this exchange is beneficial can only be assessed by scientific study, and must ultimately involve public participation in the decision making process. Additional study of sites as outlined in this report (Section 4.0) will provide coastal citizens and managers with information needed to rationally analyze the benefits and liabilities of containment facility construction in specific communities and in the Long Island Sound region.

Generally, nearshore shallow waters are considered to be more biologically productive than deeper offshore waters. This factor played an important role in rejecting use of the Norwalk Islands and Thimble Islands as containment facility sites. In effect, this dichotomy can be seen as the difference between altering existing productive habitat of shallow waters and creating new habitat through artificial island construction in deeper waters.

The question of utilizing clean or contaminated sediments in filling containment facilities was not included in the Corps' screening factors and is not discussed in this report. This issue will be a major concern for coastal residents and officials considering a specific containment facility proposal. Among the points to be addressed in discussing this matter are: potential for pollution of the marine environment from facilities containing contaminated sediments; potential for catastrophic release of these sediments due to storm action or faulty design; and potential human health and environmental impacts. Likewise, the benefit and/or necessity of isolating contaminated sediments from the marine environment needs to be assessed and included in further consideration of this issue.

Economic feasibility and the responsibilty and potential expense of maintaining a completed containment facility through long periods of time are questions which also merit additional study on a site specific basis.

This study's site specific screening recommendations can be summarized as follows:

* Duck Island Roads (site 4.6) appears to be the most promising location studied, both in terms of environmental impact and human concerns.

* Falkner/Goose Island (site 4.4) and the Stratford Shoal (site 4.8) both appear to merit additional study as potential offshore artificial island sites.

* Captain Harbor (site 4.1) should be studied if a more acceptable site cannot be found in western Long Island Sound, and if it is considered important to have a containment site in this part of the Sound.

* The Norwalk Islands, (site 4.2); the Thimble Islands, (site 4.3); Sixmile Reef, (site 4.5); Bartlett Reef, (site 4.7); and Menunketesuck Island (site 4.9) are not believed to merit additional study for possible use as containment facilities.

6.0 Appendices

6.1 Contact List

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Michael Turiano, Chairman, Stratford Waterfront Authority, Town Hall, 2725 Main Street, Stratford, CT, 06497.

John H. Volk, Division Chief, Aquaculture Division, Department of Agriculture, Rogers Avenue, Milford, CT, 06460.

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6.3 Selected Press Coverage

Branford Review

Bridgeport Post

Greenwich Time

New Haven Register

Soundings

BRANFORD REVIEW- JANUARY 28, 1982

Briefs

More islands for Creek?

Several shoreline locations, including Stony Creek, are being studied to determine the feasibility of creating containment "islands" during dredging procedures.

The Oceanic Society, under contract with the New England Division of the U.S. Army Crops of Engineers, is taking an in-depth look at using islands or shoal areas of Connecticut for potential use as a dredged material containment facility.

Whitney Tilt of the Oceanic Society said there are nine test areas earmarked for the study including Greenwich, Norwalk, Stony Creek, Guilford, Clinton, Westbrook, Waterford, Milford, and Stratford.

The disposal of sand and material dredged is an expensive and controversial problem, Tilt said. Containment offers two advantages: the draining of possibly toxic materials accumulated from the bottom of the water, and the establishment of habitats for environmentally sensitive animals.

The containment of sand can also then be utilized by light industry using the substance in its production.

The study will use four factors in evaluating each location: whether biological productivity of the area plays an important part in the Sound's marine ecosystem; whether there are concentrations of shellfish, oysters, clams, or scallops in the area; the identification of important sport or commercial fishing spots; and if there are navigational hazards at or near the site.

Tilt said each of the areas will be studied and the society's recommendations will be given to the Corps. The Corps will then study the recommended locations for the establishment of a pilot program.

Before the program is set up, however, the Corps must get U.S. congressional approval since this type of program has never been tried in the Sound.

Tilt estimated that the whole process, if approved, should take five years to complete.

Individuals and organizations concerned with any aspects of the study should contact Oceanic Society Vice President Thomas C. Jackson in the society's office in the Stamford Marine Center on Magee Avenue in Stamford.

Citizen comments and concerns received during the next four weeks will be reflected in the Oceanic study.

The Oceanic Society is a national environmental organization, Tilt said, whose research expertise and capacities are being utilized by the Army for this project.

BRANFORD REVIEW- MARCH 4, 1982

Don't stir up pollution

To the editor:

There was an article in the Branford Review of January 28, concerning the possible plan of building material containment facilities on some shoreline islands. Stony Creek was one of the nine areas mentioned. The facilities would be used to contain the materials dredged from the Sound.

I am strongly opposed to this idea. I have a young niece, sister, and brother-in-law in the Creek. I am also a frequent visitor to the Creek, and am a member of the local Congregational Church.

I am very aware of many of the pollution problems of today. This project would, in my opinion, be causing a new one. It would be very disastrous to future generations to stir up human-poisoned silts of the deeps, and to place them in close contact with human, animal, and plant life. Today's chemicals may be tomorrow's cancer. Of course, I don't mean to say that illness and other problems would show up tomorrow or even in a few years. That's one reason why we so often make these horrendous mistakes; because the results are so often unobvious and prolonged.

Please, I beg of you all! Don't allow the geographic area of Stony Creek and all of Branford to have its ecology and character endangered so severly.

This is a problem for us all, for chemical pollution sees no boundaries, and can seep into our drinking water and later the solid foods. Continued

Cows, for example, drink water. Our gardens and crops grow depending on water.

I, as a youngster of Branford request of you: don't poison our generation or our future children.

Elizabeth H. Smith
Linden Avenue

BRIDGEPORT POST- JANUARY 28, 1982

Society begins survey on adding to shoreline

By TED SCALA
Post staff writer

Taking "a quick look" at the feasibility of disposing of dredged sediment from urban harbors by using them to build new land along the Connecticut coast, the Oceanic Society has undertaken a $1,900 study for the U.S. Army Corps of Engineers.

The study will look at nine possible sites for land creation including the Stratford Shoals off the mouth of the Housatonic River, the Charles Island area of Milford and the Norwalk Islands.

Thomas C. Jackson, vice president of the Stamford-based Oceanic Society, said during an interview that the "quick look" study was one of the first steps in a long series of moves that would be taken before dredge containment, the disposal of dredge waste by using it to build islands and coastal extensions, was employed in Long Island Sound.

Jackson said that as part of its study, the society is seeking comment about the sites from local and federal officials, fishermen and the public. The sutdy is slated to evaluate each of the nine sites for biological productivity, shellfish concentration, finfish concentration, navigational characteristics, adjacent land use and distance from dredging sites.

The Corps maintains that particularly for dredging operations in western Long Island Sound there are no economical sites for the disposal of wastes.

Dredge containment by using sediment to build islands was the subject of a series of workships conducted last spring along the Sound.

The U.S. Army Corps of Engineers had been examining various ways of disposing dredged waste in the Long Island Sound area and last spring sponsored a series of workshops along the Sound on dredge containment.

Currently the corps is working on an environmental impact statement detailing the effects of using an open water site about five miles southwest of Norwalk for a dumping ground for dredge waste. That report is due in a month or two.

Long Island fisherman have objected to use of the site.

Jackson said public comment on the society study should be submitted by Feb. 22. The study should be completed by the end of February, he said.

GREENWICH TIME- SUNDAY, JANUARY 24, 1982

– Connecticut Newspapers Inc., Sunday, January 24, 1982

U.S. Army plans to create new islands off Fairfield County's coast

By Gretchen Webster
Staff Writer

The U.S. Army Corps of Engineers is weighing plans to create new islands in Captain's Harbor off Greenwich, among the Norwalk Islands off Norwalk Harbor, and at eight other places in Connecticut's coastal waters.

The islands could provide the area with new parks or wildlife sanctuaries while giving the Army engineeers a dumping site for material-some of it toxic-dredged from Connecticut's harbors to keep them deep enough for boating.

The island study, conducted by The Oceanic Society in Stamford under contract to the Army Engineers, was begun partly because there were few places to put the muck collected in the process of dredging the state's waterways, according to Karen Kirk, civil engineer for the Army Corps.

All but three of the state's dumping sites in Long Island Sound were closed after environemntal legislation set rigid standards for the dumping of toxic material in open waters, Kirk said.

Although the federal government has been searching for sites to put the dredge spoils along the coast, "nobody wants it in their back yard," she said.

Meanwhile, Greenwich Harbor, the mouth of the Mianus River and other waterways are filling in and becoming too shallow for safe navigation, threatening commercial and recreational boating, according to Robert Chard, Superintendent of Mmarine Facilities for Greenwich.

"There is a serious need for dredging, particularly in the Mianus River," he added.

Some of Greenwich's waterways have not been dredged for a decade, and are not naviagable at low tide, Chard said.

The lack of dumping sites threatens the livelihood of fishermen and private marine operators, and draws complaints from both commercial and recreational boaters in the area, he added.

"The stuff has to be dredged, nobody argues that point. Without dredging the harbors are useless," Kirk said. "We're looking for a better way."

The solution may lie in stockpiling the wastes in offshore "containment facilities" or islands, where toxic spoils are covered with clean material, producing new land, she said.

Islands made from dredge spoils in other parts of the country have been turned into parks, and one island has become the site of a hotel complex, Kirk said.

Long term tests of the man-made islands have shown that the material can be contained, and that drainoff water from the islands is not necessarily toxic, she added.

The effect of waste-created islands on marine life, on harbor traffic, and on fishing grounds is also due to be studied by the Oceanic Society, a private non-profit group dedicated to preserving the marine environment.

The $1,900 study, which is slated for completion by the end of February, will determine only which sites should be studied further as suitable spots for new islands, according to Thomas Jackson, vice-president of The Oceanic Society.

The size of the islands, created by building impervious dikes, filling them with the dredged materials, and adding clean fill on top, will depend on the space available at the chosen sites- and on economics, he said.

To make an island dumping site economically feasible, the island must hold at least 200,000 cubic yards of fill, and would be as big as 100 acres, Kirk said

Part of the difficulty in finding sites for new islands off Greenwich and nearby coastal towns is attributable to heavy harbor traffic and competing uses, she said.

"In urban areas, it is more difficult to find a suitable site."

NEW HAVEN REGISTER- FEBRUARY 2, 1982

Dredge plan uld create new islands

By KIM CALDWELL
Staff Reporter

A Stamford conservation organization is studying 10 coastal sites – including six in the Greater New Haven area – as possible disposal sites for materials dredged from Long Island Sound and nearby waterways.

One plan under discussion would be to extend existing islands in the Sound or create new ones with the dredged materials.

The Oceanic Society is ranking the sites to determine which ones "merit detailed scientific examination and environmental review," according to Thomas Jackson, vice president. The study is being funded by the U.S. Army Corps of Engineers.

The New Haven area sites are: the Thimble Islands off Stony Creek, Branford; Six Mile Reef, Menunketesuck Island and Duck Island Roads areas in Clinton, Faulkner's Island off Guilford; and Charles Island off Milford.

Other sites included in the study are: the Stratford Shoal area, the Norwalk Islands, Captain's Harbor off Greenwich and Bartlett Reef off Waterford.

The Oceanic Society will rank the

(Please turn to page 2)

Dredge plan

(Continued from page 1)

sites according to biological productivity, fish concentrations and navigational hazards, Jackson said.

The society also will consider current use of land adjacent to the sites, the distance to existing dredging activities and other potential impacts, he said.

Only the locations considered most suitable for containment facilities will be further examined. Some sites may be judged unsuitable, Jackson said.

If a place such as Faulkner's Island is selected, Jackson said, the Corps of Engineers would create a disposal site by filling in shallow areas – or building a new island – adjacent to Faulkner's.

To extend or build an island, a dike made of impervious material such as clay or large stones would be constructed. The dike, which would extend 20 feet below the mean water level, would form a lagoon, he said.

Silt and dredged materials dumped there would settle, creating a land mass. "The dike would be carefully monitored in a manner to minimize siltation," Jackson explained.

Currently, material dredged from harbors and channels is either dumped in one of two designated areas in Long Island Sound or trucked to an inland dumping site. Hazardous materials sometimes are buried underwater in containment facilities, he said.

The Oceanic Society realizes that there would be "a clear trade-off" where islands are built or extended. "We would be trading off water that potentially could produce shellfish and finfish," he said. "We would be putting in areas that would support marsh life."

Study explores islands made of dredge spoils

By NANCY TRIMBLE

Creating islands or extending coastal marshes with dredged sediment may be a common practice in many areas of the country, but it would be new to Connecticut.

The feasibility of such a program in the state is the subject of a short-term study by the Oceanic Society, a national marine conservation group.

A lack of dumping sites for dredged material in Long Island Sound has delayed numerous projects to improve harbors and maintain channels and docking sites.

Under a $1,900 contract from the U.S. Army Corps of Engineers, researchers from the Oceanic Society are looking at eight Connecticut sites where sediment from urban harbors in Long Island Sound could be dumped.

"It's not a field study. We've been interviewing municipal officials, fishermen, concerned citizens and others to obtain information in a preliminary screening effort," said Thomas C. Jackson, Oceanic Society vice president.

"We're looking for red lights that would tell us: It doesn't make sense to look here," he said. "The Corps of Engineers will use that information in selecting sites for additional environmental studies.

"It makes sense to spend a few hundred dollars (on this study) before the Corps of Engineers spends a lot more money on the in-depth studies."

The Oceanic Society has been studying the following areas: Captain Harbor off Greenwich, Norwalk Islands off Norwalk, The Thimbles off Stony Creek, Falkner Island off Guilford, Sixmile Reef off Clinton, Duck Island Roads between Clinton and Westbrook, Bartlett Reef off Waterford and Stratford Shoals off Stratford.

The three-month study, which was to have been done by the end of March, has turned up a couple of so-called red lights, Jackson said.

Comments from those surveyed show some opposition to building islands or marshes near Falkner Island, a much-used recreational area, and near the Norwalk Islands, a shellfishing site, Jackson said.

"Anywhere you go it's going to be a trade-off between competing uses," he said. "If you cover up a shellfish bed, you'll lose a fishing area but you stand to gain a recreation area or a wildlife refuge."

In studying each site, the Oceanic Society has considered the area's role in the sound's marine ecosystem, its proximity to shellfish beds, its finfish population and nearby navigational hazards.

The Army Corps of Engineers has been working on detailed environmental studies at two Connecticut locations: a marsh area off Hammonassett Beach in Clinton and Black Ledge in the New London Harbor.

Preliminary results of those studies will be released in late May, according to Dick Quinn, a water resources engineer with the Engineers.

Jackson said the Oceanic Society would report its findings to Quinn this month, but the conservation group will continue to receive comments on the proposed dumping sites. Comments may be addressed to the Oceanic Society, Stamford Marine Center, Magee Avenue, Stamford, Conn. 06902.