Appendix II

A detailed description of eelgrass in Buzzards Bay

Introduction

In this section, I provide a detailed description of eelgrass distribution in Buzzards Bay, and include numerous details on local subtidal physical, biological, and hydrological features. My intent in providing this information is to aid scientists and managers understand the factors that may affect to eelgrass distribution, to demonstrate the diverse nature of eelgrass communities in Buzzards Bay, and to aid others in the analysis of aerial photographs of the region.

I include eelgrass beds with as little as 10% cover, therefore Appendix III (% cover of beds) should be referred to when studying these maps. In this report, "eelgrass habitat area" refers to the area in which eelgrass is an important component of the bottom, and "eelgrass bed area" refers to area corrected for percent cover.

Results

Westport (Figs. 1 + 2)

The distribution of eelgrass shown in the East and West Branches of the Westport River was based on aerial surveys taken 15 June 1982 and 5 November 1979, information from the town shellfish warden, and field observations in the West Branch on 9 August 1984. The distribution of eelgrass in the East Branch was not field verified and was primarily based on photographs and descriptions by the warden.

Beginning in 1984, eelgrass extensively colonized mudflats in the lower half of the Westport Rivers for the first time in recent memory of local residents. Because the photographs used were taken before these changes, the distribution of eelgrass shown in West Branch, Figure 2 was based primarily on field observations. Eelgrass beds in the East branch could not be mapped because of lack of field observations, glare on the 1982 imagery of the East Branch, and low eelgrass abundance in 1979 imagery.

The beds that appeared on the tidal flats in the West Branch during 1984 were composed of dense, short, vegetative and reproductive shoots that grew from seed in June and July. In one of these beds (between Great and White Flats), shoot density was 627 shoots m^{-2} (n=8, SE=68), and aboveground biomass exceeded 200 g m^{-2} (n=2, SE=12). Flowering shoot densities were 179 m^{-2} (n=8, SE=38.4), and the seed production exceeded 15,000 m^{-2} y^{-1}. Because these beds appeared late in the growing season, most flowers were unfertilized at the start of August, which is atypical in the region. In deeper channels, most shoots were vegetative.

The cause of this recent recolonization is unclear, and this estuary has undergone sizable fluctuations in eelgrass abundance in the past (Chapter 4). These new beds accounted for at least a 30% increase in eelgrass cover in this estuary over one year. Ice-scouring and freezing caused moderate loss of these beds during 1984-1985, but they regrew in subsequent years (D. Roach- town of Westport shellfish warden, pers. comm). Two years after the 1984 eelgrass expansion scallop catches were the best in many years (Alber, 1987). Whether the increased eelgrass habitat area enhanced scallop recruitment needs further study.

Today, eelgrass grows as far north in the West Branch as Judy's Island and Upper Spectacle Island on the East Branch. These limits probably do not correspond to the lower limits of salinity tolerance in eelgrass because shellfish such as Mercenaria are found north of these areas (D. Roach, pers. comm.), and eelgrass grew further north in the past (Chapter Four). Instead, the upper limit estuarine limit of eelgrass growth may be due to nutrient loading.

For example, eelgrass beds in the north end of the West Branch have more conspicuous algal epiphytes, and drift algae accumulates among shoots. Drift and attached algae were especially prevalent in bed WEWB1, and eelgrass is sparse here and other poorly flushed areas in the upper estuary, and cover less than 40% of the outlined areas. Light availability to eelgrass diminishes as one proceeds north into the estuary: eelgrass grows below 1.8 m MLW near the mouth, 1.2 m at Whites Flat, 0.9 m north of Great Flat, and less 0.6 m around Hicks Cove. There is much farmland in the drainage basin of this estuary, as well as homes along shore that may be contributing nutrients to this estuary, and may account for these trends.

All together, there was approximately 180 ha of eelgrass in the West Branch (adjusted for percent cover) in 1984. The East Branch has 60% greater subtidal area than the West Branch, but because eelgrass is largely absent from the top quarter of the estuary, eelgrass bed area, for production calculations, was conservatively estimated to be 100 ha.

Off Horseneck Beach and Gooseberry Pt., considerable wave action reduces water clarity and makes interpretation of photographs difficult. Eelgrass grows to 3.6 m MLW on the outer coast of Dartmouth, with similar depth penetration, 400 ha of potential substrate on the outer coast of Westport. Eelgrass is not abundant nearshore because of high wave energy, but some eelgrass may grow among the boulders deeper offshore. For production calculations, 10% of this area was assumed to have eelgrass cover.

Dartmouth: Allens Pond to Round Hill (Figs. 5 + 6)

This map were based on 1975 and 1981 aerial surveys and several field visits in 1984 and 1985. Allens pond was not included in this study, but eelgrass was reported there by local residents.

This area has diverse habitats in which eelgrass grows. Eelgrass is abundant on the mud and sand bottom between the mouth of the Slocums and Little Rivers around Potomska Pt. The water is discernibly brown and turbid here during outgoing tides do to the discharge of the Slocums river which carries a high load of iron oxides. The shoots growing in this area are heavily epiphytized, perhaps due to the nutrient content of the river water. Because of the water turbidity and epiphyte growth, eelgrass grows only to 0.9 m MLW in a 4-6 m strip on either side of a 2.1 m MLW channel.

Eelgrass is very sparse in the Slocums River north of Potomska Point, and water transparency or nutrient loading may limit eelgrass distribution there as well. New seedlings were observed in this area during the summer of 1984, but they were heavily epiphytized and no perennial beds were found. Eelgrass also disappears abruptly at the 50 m south of the bridge at Little River, but this is probably due the shallowness of the flood delta there. It was not determined whether eelgrass grows north of the Little River bridge.

In contrast, the bed by Barneys Joy (DABJ1) grows in a high energy, well flushed, coarse sand environment, to 1.2 m MLW. This bed was more robust and had greater biomass (shoot density > 400 m^{-2}, 190 g dry wt m^{-2} ; n=4, SE=10).

South of the channel at Potomska Pt. is a large sand flat. Eelgrass may grow at the south-most deep edge of this feature, but no beds could be identified from either the photographs or field visits. Eelgrass beds visible on photographs of the north side of Deep Point the during early 1970's disappeared because of erosion in that area in 1978.

Offshore from Allens Pond and Barneys Joy, wave action is strong and submerged vegetation could not be discerned on photographs. The bottom is covered with large boulders, but it is likely some eelgrass grows there, although its extant is unknown.

Mishaum Pt. has a large boulder field to its west, and eelgrass is extensive here beginning at 0.6 m MLW among the rocks. Eelgrass may also grow along the southeastern and southwestern shores of Mishaum Pt., but this area was not field investigated and the sharp slope of the bottom makes interpretation of the photographs difficult.

The beds indicated in Salters Pt. Pond may be algae. Whether they are algae or eelgrass, the vegetation is less abundant in the 1981 photograph than the 1970's photographs. Outside of Salters Point Pond is a dense eelgrass bed in which a transect was run. Biomass was 160 g dry wt m^{-2}, density was 350 m^{-2}, and leaf canopy exceeds 1.2 m. Epiphyte levels were high for a relatively well flushed area, and this may be do to the presence a sewage discharge pipe adjacent to the bed.

Immediately east of Salters Pt., vegetation was discernible on the 1981 photograph, but was not field verified, and may consist of rock covered algae as well. The beach west of Round Hill is sandy and eelgrass is absent nearshore except for bed RB1.

Round Hill Pt. is a high energy environment with large rocks and cobbles. Nonetheless, eelgrass is quite abundant below 2ft MLW between rocks and along stretches of sand. Eelgrass is abundant around Dumpling Rocks where sand accumulates and grows to 3.7 m MLW. Both here and the large bed DARH1 contain much rock and boulders and, only 50% eelgrass cover is assumed for production estimates. The eelgrass beds north of Round Hill also contain rock and algae, and the beds show dynamic changes in distribution between recent photographs.

Eelgrass continues north along the shore of Nonquit. These beds were mixed with rocks and algae, making their exact dimensions are unclear, although they appear to occupy a strip along shore, mostly less than <30 m wide. Many of the beds are too small to be identified from photographs.

Altogether there are 150 ha of substrate less than 3.6 m that were not mapped in this area, and for production estimates, 30 h of eelgrass is assumed to grow in these locales.

Apponagansett Bay, Dartmouth to New Bedford (Figs. 7 + 8)

The map of eelgrass distribution in this area were based on 1975, and 1981 photographs, and field visits in 1984 and 1985. This area has had sizeable anthropogenic disturbances in the past, and both Apponagansett Bay and the New Bedford area have seen considerable decline of eelgrass during the last 15-25 y (Chapter 4).

In field visits in 1985, eelgrass extended midway between Nonquit and the Padanaram bridge on the Western shore. Similarly, eelgrass disappears in the outer harbor near Giffords Marina on the eastern shore. In 1985, no eelgrass was found north of the Padanaram bridge despite reports that it does grow there. In photographs taken prior to 1982, some eelgrass is present in the bay, but many of these beds apparently disappeared. Identification of photographs is difficult in some areas because of drift material, including the extreme north end of the Bay along the banks of the bay. This area was not field verified and it was assumed that this is drift algae or *Ruppia*.

The absence of eelgrass in the inner harbor appears to be due to increased light availability. For example, eelgrass grows south of the Marina in the outer bay and continues southward to Ricketsons Pt at the mouth of the harbor. Near the mouth of the Bay, eelgrass grows down to 2.5 m MLW, however, the maximum depth of growth decreases as one proceeds northward and rises to 1.2 m south of the marina, then disappears entirely. Epiphytic algae on eelgrass leaves increase conspicuously along this same transect. Prominent accumulations of *Gracillaria* and *Ulva* in the inner harbor further suggest that nutrient loading is high in this area. Boat activity may also be contributing lesser light availability to eelgrass (see chapter 4).

Along Ricketsons Pt., eelgrass occurs extensively amongst the large boulders and cobble, but only 50% cover was assumed for these beds. Southwest of Ricketsons Pt., eelgrass may grow in deeper water, but could not be discerned on available photographs.

Small patches of eelgrass were found nearshore during dives in 1985 between the area immediately north of Ricketson Pt. and Clarks Cove. These beds were abundant nearest to Ricketson's point and gradually became less abundant to the north, and disappeared completely at Moshers Pt. No eelgrass could be found in the field or on photographs along any part of Clarks Cove.

Eelgrass is virtually absent from any part of the coast of New Bedford, although this was not true in the past. The only eelgrass found today in New Bedford is a small area on the southwest corner of Clarks Pt. Here eelgrass grows amongst a rock and boulder field at 0.3 m MLW and continues offshore to an unknown depth, but probably less than 0.9 m MLW due to low water transparency there. The New Bedford sewage outfall, which is conspicuous on aerial photographs, discharges 600 m from this bed.

Eelgrass is absent in Fairhaven along the Acushnet River shore and Fort Phoenix shores.

Fairhaven to Brant Island, Mattapoisett (Figs. 9 + 10)

This vegetation map was base on 1972, 1974, 1980, 1981 aerial surveys. Underwater and boat observations were conducted in 1984 and

1985 east of the mouth of New Bedford Inner Harbor, and south along the western shore of Sconticut Neck, at North Cove on West Island, and around Nasketucket Bay.

Eelgrass is absent between the marshy embayment near Popes Beach and Silvershell Beach, which has a conspicuous rock and algae field offshore. No eelgrass was observed between this area and the shallows north of Little Egg Island. Vegetation that is apparent on photographs is composed of drift and attached algae, particularly *Codium*. These shallows were not fully searched and they deserve further exploration.

On the southwestern Sconticut Neck shoreline, eelgrass is extensive and dense, and relatively free of algal epiphytes. Large rocks and cobbles are interspersed throughout the area, but where there is sand on the bottom, eelgrass grows to 3.0 m MLW. Northeast of Wilbur Pt. and on the southern shore of West Island, eelgrass beds continue along shore. Rock and algae cover sizable parts of the bottom in these areas, especially nearshore. The lower limits of some of these beds could not be discerned from the photographs and are in part based on bathymetric contours.

Eelgrass is extensive throughout Nasketucket Bay above 3.0 m. Substrate between 3.0 and 3.5 m also has eelgrass, but beds often consist of extensive bare areas. Biomass samples were collected with SCUBA in North Cove on West Island, where eelgrass grows to 3.6 m MLW. At the center of bed distribution, mean aboveground biomass equals 210 g dry wt m^{-2}.

No eelgrass grows on the rock and mud bottom of Little Bay, but algae (especially *Codium*) are abundant there. The water is turbid and there is considerable growth of periphyton and drift algae.

Eelgrass grows near Pea Island, and is extensive around Brant Island, and patches of eelgrass continue on either side of the sand bar connecting Brant and Ram Islands. This is a high energy environment with a sandy bottom; the eelgrass coverage consisted of circular patches 2-10 m in diameter spread about 1 bed diameter apart in shallow areas. South of Ram Island the margin of the eelgrass was difficult to discern on available photographs and is partly based on bathymetry.

Brant Island Cove was not entered but appeared to contain some eelgrass in the 1981 photograph. Eelgrass may also grow around White Rock, but this area was not investigated. Small patches of vegetation between 2.4 and 3.6 m MLW in Nasketucket Bay may be unrecorded.

Mattapoisett Harbor and vicinity (Figs. 11 + 12)

This eelgrass map was based on 1978 and 1981 photographs, and except for the Brant Island-Ram Island local described in Map 4, no part of this area was examined in the field, although information was obtained from the Mattapoisett shellfish warden.

Mattapoisett Harbor is moderately developed alongshore and is subject to considerable boat traffic. Until recently, a sewage outfall had discharged in the harbor for many years. The slope of the shoreline is steep, and much of the bottom is below the limits of eelgrass growth. Eelgrass beds are easy to discern in most of this area from aerial photographs, except the inner portion of Mattapoisett Harbor. Here, poor water clarity, steep beach slope, and poor contrast between vegetation and substrate combine to make photograph interpretation difficult, and parts of the lower bed boundaries are estimated based on bathymetry.

Eelgrass beds north and east of Strawberry Pt. are distinct, but this is a high energy environment, and these beds show variability in shape on recent photographs, especially near shore. The vegetation indicated in Pine Island Pond may be composed mostly of algae and or *Ruppia*, and this area needs to be further study. Rocky ledges offshore and the mouth of the Mattapoisset River may also contain eelgrass populations.

Hiller Cove, Mattapoisett to Marion (Figs. 13 + 14)

Like the last area described, this vegetation map was based primarily on aerial photographs (1972, 1974, 1978 and 1981) and information from the shellfish warden. Only Bird Island and Butler Pt. were examined in the field.

Bird Island is surrounded by rock and boulder particularly on its south side and is a moderately high energy environment. Nonetheless eelgrass grows abundantly below the tidal wave action and is quite dense between the Island and Butler Pt, except on the sand bar connecting the two.

Blankenship and Planting Island Coves contain much algae and some *Ruppia*. Eelgrass is present here, but with low cover, and beds have been declining in recent years (G. Taft, pers. communication and chapter 4). In addition, drift algae have been accumulating here in recent years. Nutrient inputs from nearshore developments may be a factor in both these changes.

The north end of Sippican Harbor has poor water transparency and accumulated drift algae making bottom vegetation difficult to discern. Some eelgrass is apparent south of Little Neck and Hammet Cove and along shores to the south.

Sippican Neck, Marion to Great Neck, Wareham (Figs. 15 + 16)

This map was based on 1975, 1978, and 1981 photographs and field observations were made in the Great Neck-Wareham River Area 1985.

Much of the offshore habitat in this area is within the depth range of eelgrass growth and eelgrass is abundant throughout the area. Bed WAGN1, one of the largest continuous beds in Buzzards Bay, was sampled in 1985. Eelgrass grew to 2.4 m, leaf canopy was 70 cm. Near the deeper edge of the bed *Codium* was abundant, attached to shell and stone, often covering 20% of the bottom. In this area there were large bare areas as well. The mean biomass here was 75 g dry wt m^{-2}, and shoot densities were exceed 200 m^{-2}. Other parts of the bed have higher densities and standing stocks. The sediment at the transect site was composed of 30% silt and clay, 20% sand, and the surface was covered with 1-2 cm gravel.

Eelgrass is abundant at the mouth of the Wareham River. Further upriver, water transparency declines, and periphyton and drift algae are increasingly abundant. Most of the vegetation drawn on this map was based on a 1981 survey. In 1985, the beds on the shore north of Swifts beach could not be found and may have disappeared. Drift algae is abundant here and may have replaced some of the beds. While eelgrass grow to 3.5 m off great neck, eelgrass grows to only to 1.0 m MLW north of Crescent Beach. The upper estuary limit of eelgrass distribution appears to be near Crab Cove in 1981, but this vegetation could not be found by boat in the summer of 1985.

Along the Marion shore, eelgrass forms nearly a continuous subtidal band among rocks and boulders. Eelgrass is abundant in Marks Cove, around Cromset Neck, and into the Weweantic river. The upper extant of eelgrass in the Weweantic was not determined, but at least extends to the bridge near its mouth. The beds in Marks Cove were not sampled, but eelgrass was more continuous and denser than on the shoal south of Long Beach Point (bed WAGN1).

Eelgrass is very abundant around the rocky shallows that make up Little Bird Island. The beds are densest adjacent to the Island and on the sand spit that meanders northwest of the Island. Sparser cover continues to the south and west. The deeper areas to the north and east of the island do not support eelgrass. The beds around Great Hill Point contain considerable algal covered rock fields.

Great Neck Wareham to Pocasset, Bourne (Figs. 17 + 18)

The map of eelgrass beds between Great Neck and Pocasset were based on aerial photographs, taken in 1971, 1975, 1974, and 1981 and field surveys in 1985 and 1986 around Buttermilk Bay and areas south to the Canal.

This region is dominated by shallow, protected embayments, with good water circulation, in part due to water exchange through the Cape

Cod Canal. Most of the shallow coves have extensive eelgrass cover making this region and the adjacent south shore of Great Neck have the highest total coverage of any area in this study.

Buttermilk and Little Buttermilk Bays are typical of the shallow embayments in this area, and eelgrass grows densely in each (<1.5 m MLW and <1.2 m MLW respectively). Dense beds also occur in Onset Bay and around Great Neck and Point Independence. The vegetation indicated in the upper reaches of some of these coves, for example, bed BOTI5 at Toby's Island, bed BOAP2 at Mashnee Island, as well as the beds northwest of Shell Pt., and in Broad Cove probably contain considerable amounts of drift algae and possibly *Ruppia*.

Among the interesting features in this region are the eelgrass beds surviving on the Canal flood deltas south of Taylor Pt. and Mashnee Island. These beds occupy a region of high current velocity and have a very distinct striated pattern.

Between Little Bird Island (Map 7A) and Stony Point, a shallow shelf covers hundreds of hectares with a depth of 1.8 to 3.0 m; much of it covered with eelgrass, forming some of the largest eelgrass beds in Buzzards Bay. Water transparency is better here than at Longbeach because water clarity improves with increasing distance from the Wareham River toward the canal, and eelgrass grows to at least 3.0 m. Like the Longbeach Point shoal, this area probably contains considerable volumes of *Codium* as well. Because a large percentage of bed area grows near the depth limit of *Zostera* growth, any decline in water transparency will result in loss of large areas of eelgrass, making this an ecologically sensitive area.

On the shore east of the entrance to Little Harbor, eelgrass grows in the troughs of sand waves, creating a distinct banded pattern observable on photographs. These beds show considerable movement between photographs.

The lower limit of eelgrass is was difficult to delineate on the photographs along the west side of Stony Point, Mashnee Island, and the West Side of Toby Island and are partly approximated based on bathymetry. Eelgrass grows along the margins of the Cape Cod Canal, but these were not included in production estimates.

This part of Buzzards Bay has become increasingly developed and urbanized, and water quality has declines have been reported in some areas such as shellfish bed closures in the Wareham River and Buttermilk Bays due to elevated coliforms. In Buttermilk Bay near inputs of nutrient sources, eelgrass grows to lesser depths or may be absent, and periphyton abundance is high (Costa, 1988, Costa and Valiela, in prep.).

Bourne: Wings Neck to Megansett (Figs. 19 + 20)

Maps of eelgrass abundance in Bourne, south of Wings Neck were based primarily on 1975, and 1981 aerial photographs and reports. No satisfactory photograph coverage was obtained west of Scraggy Neck.

Zostera is abundant in this network of shallow protected harbors. In low energy areas such as Red Brook Harbor and Wings cove, eelgrass is dense and continuous. On exposed parts of Scraggy Neck and Wings Neck, eelgrass beds nearshore are dominated by algae covered rock and boulder. The western tip of Scraggy Neck could not be interpreted clearly, but eelgrass appears abundant beginning at the edge of the boulder fields nearshore, and extend to the ledges a kilometer offshore. The eelgrass in this area appears to grow to at least 4.5 m. Even if rock and algae covered 50% of the bottom, there still may be 35 ha of unmapped eelgrass vegetation in this area. Similarly, eelgrass may grow on the rocky platform north of Scraggy Neck, but is not indicated on the map.

Megansett Harbor is a shallow, high energy embayment, with sandy sediment and abundant eelgrass. Typical of this type of environment, eelgrass beds contain considerable bare patches where eelgrass was removed by storms or wave scour. Many of these beds also have distinct banding appearance because much of the habitat is too shallow, and eelgrass can survive only in the troughs of sand waves.

The periphery of this harbor has a gradual slope, but the bathymetry drops off sharply near the center of the bay. Eelgrass grows to 5.4 m here and bed FAMH26 fills all but the center of this basin. Potentially, some of this apparent "growth" is drift material, but this depth is consistent with maximum vegetation depth southwest of Scraggy Neck and east of Great Sippewissett Marsh (Fig 18). Some of these deep beds probably contain considerable algae covered rock fields, and the maximum depth of growth of these beds needs further study.

Eelgrass is distinct on the sand bars surrounding the south end of Stony Point Dike. The Squeteague Harbor beds probably contain sizable amount of drift algae or *Ruppia*. The broad southern lobe of the canal ebb delta covers 120 ha at 2.4-3.3 m MLW 500 m north of Wings Neck. The shallow part of the delta is covered with eelgrass (also Fig. 18), but it is unclear if this deeper lobe is vegetated.

Falmouth: Megansett to West Falmouth Harbor (Figs. 21 + 22)

These maps were based on from 1972, 1975, 1980, 1981 aerial surveys. The distribution of eelgrass in West Falmouth Harbor was based on a 1979 low altitude survey and maps by Buchsbaum (1985).

Eelgrass is absent from along Silver Beach which may be due to the strong wave action and longshore transport apparent on photographs. Water clarity is good in this part of Buzzards Bay because eelgrass grows to 4.5 m MLW on most of the outer coast.

Accumulated drift material and *Ruppia* in West Falmouth Harbor make interpretation of aerial photographs difficult, especially in upper estuarine ares like Harbor Head. To adjust for algal cover, eelgrass cover was estimated as 50% of vegetated habitat area.

The deeper edge of eelgrass off Chappaquoit Pt. and the Falmouth Cliffs follow the 3.6 to 4.5 m contour.

Falmouth: Chappaquoit Point to Gunning Point (Figs. 23 + 24)

Aerial surveys from 1975, 1978, and 1981 were used to make this map. Field observations were made near Great Sippewisset Marsh.

This is a moderate energy environment with sand and rock covered shores. In addition. numerous peat reefs occur nearshore along both Little and Great Sippewisset Marshes. The deep beds offshore visible on photographs (to 4.2 m MLW) are consistent with bathymetry but may include rock fields. The percent cover of eelgrass beds in these and other rocky areas like Hamlin and Gunning Points (beds FAGU3, FAHP1, FAHP2) were reduced by 30% cover to account for rock and cobble fields.

No eelgrass was found in either Great or Little Sippewisset Marshes, but some *Ruppia* was reported in Quahog Pond.

Falmouth: Woods Hole Area (Figs. 25 + 26)

The map of eelgrass in the Woods Hole area was based primarily on a 1975 aerial survey supplemented by 1971, 1978, and 1981 aerial surveys and numerous field observations between 1981-1987. Biomass collections, productivity measurements, or both were made in Great Harbor, south of Uncatena, the East side of Juniper Pt., The Knob, west of Penzance Point, and along Quisset Beach.

This region offers diverse habitats for eelgrass growth, and depth limits of growth range from 3.6 to 6.0 m MLW. For example, some areas, such as the south side of Ram Island and the passages and harbors around Nonamesset, Uncatena, and Naushon Island (not shown), are protected from wave scouring and storms, but have a moderate current flow. The sediments are often composed of fine anoxic mud and silt, especially within the eelgrass beds. The combination of good water circulation and this type of sediment often results in the most luxurious beds in the region, with canopy height exceeding 1.5 m, and above ground biomass greater than 250 g dry wt m^{-2}.

This area coincides with a glacial moraine, and large rock and boulder fields are typical in this area, especially within the Hole and at exposed points. At MLW, many of these algae covered boulder fields are prominent at or just below the waters surface. Eelgrass is found in these areas generally below 0.9 m MLW where there are patches of sand, and more continuous beds are found to 5.5 m MLW. Some of these beds, such GH10 and PP1, are extensive. Percent cover of eelgrass was adjusted for rock and algal cover in some areas.

The area east of Nobska Pt. was not included in the area summary of eelgrass in Buzzards Bay. This is high current velocity environment with a coarse sand and gravel bottom, little drift algae, and eelgrass growth to 6.0 m MLW in the clear water here.

Elizabeth Islands

The distribution of eelgrass on the Elizabeth Islands was not mapped, but eelgrass bed area was estimated to calculate total eelgrass production in Buzzards Bay. Eelgrass bed area was estimated from potential substrate area and eelgrass bed-substrate ratios (c.f. Chapter 1) and assumptions made from aerial photographs and field observations in several areas.

The islands are composed of diverse habitats. In protected coves, eelgrass grows in the intertidal to 2 m. Most of the shores facing Buzzards Bay however, are high energy, rocky environments, and eelgrass usually does not grow above 1.0 m MLW because of wave scour. Eelgrass grows deeper around the Islands than along the mainland part of Buzzards Bay because water transparency is better: on the outer coast eelgrass was observed at 6.0 m on the northeast end of the chain, and divers reported eelgrass growing in excess of 10 m on outer portions of the Island chain.

Even though eelgrass grows deeper in the Elizabeth Islands than other parts of Buzzards Bay, it is less abundant here because the beaches have very steep slopes, and large portions of potential substrate area are covered by rocks and boulders from glacial deposition or sandy shoals. For example, the area of substrate less than 5.4 m (18 ft contour) around the is 1300 ha, compared to 8500 ha less than 3.6 m along the mainland of Buzzards Bay. If the mean substrate eelgrass ratio is 2.4 like other parts of the Bay (Table 3 in Chapter 1), eelgrass habitat area equals 540 ha in the Elizabeth Islands. To account for rock and cobble bottom and wave disturbance, only 50% of the area was estimated to contain eelgrass (vs 67% for other parts of Buzzards Bay, Table 2 in Chapter 1). Given these assumptions, eelgrass bed area along the Buzzards Bay shore of the Elizabeth Islands is 270 ha.

Figure 1. Map of Westport showing site names.

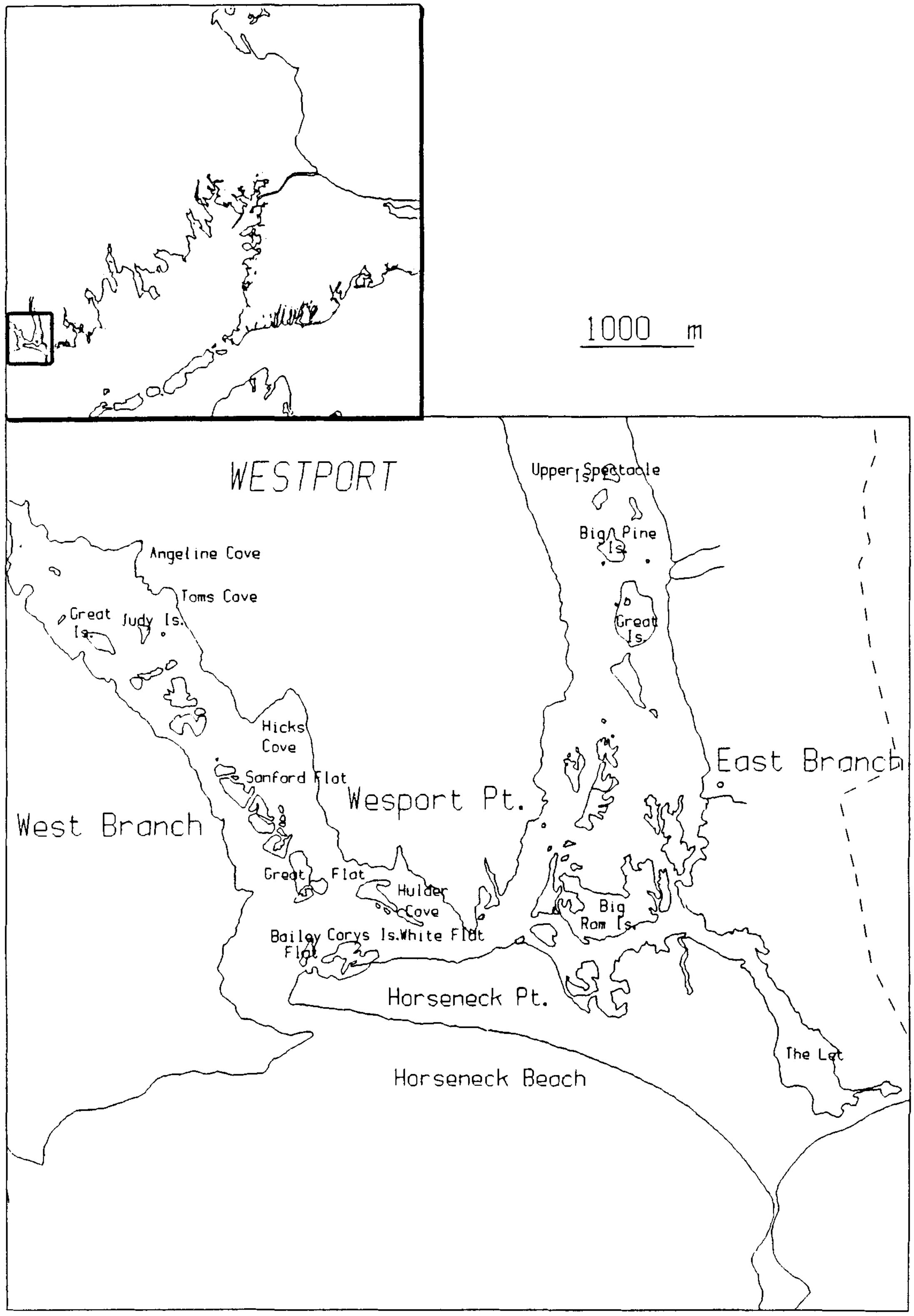

1000 m
WESTPORT
Upper Spectacle Is.
Big Pine Is.
Angeline Cove
Toms Cove
Great Is.
Judy Is.
Great Is.
Hicks Cove
Sanford Flat
East Branch
Wesport Pt.
West Branch
Great Flat
Hulder Cove
Big Ram Is.
Bailey Flat
Corys Is.
White Flat
Horseneck Pt.
The Let
Horseneck Beach

Figure 2. Map of Westport showing eelgrass beds.

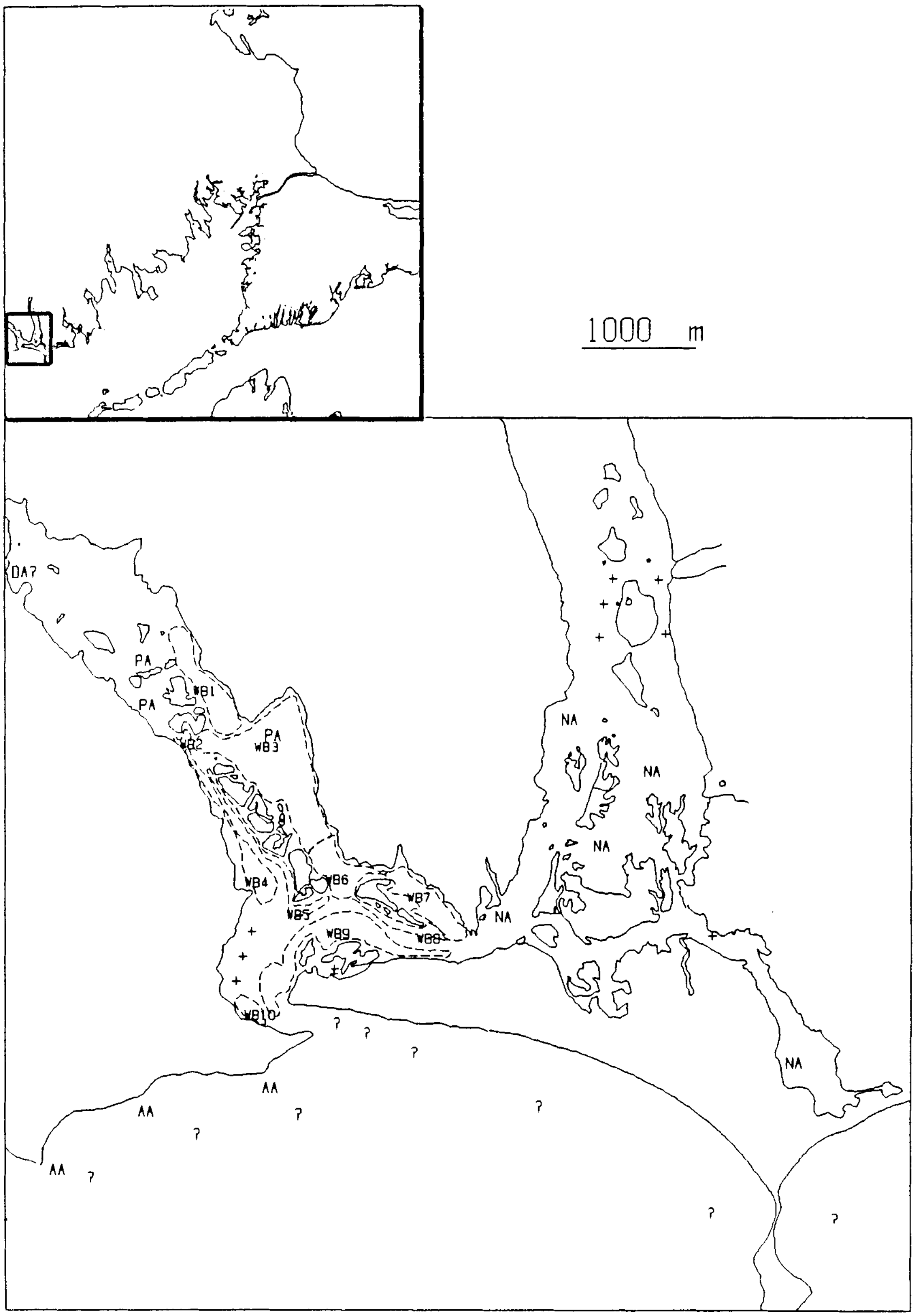

1000 m
DA?
PA
PA
WB1
PA
PA
WB2
WB3
WB4
WB5
WB6
WB7
WB8
WB9
WB10
NA
NA
NA
NA
NA
AA
AA
AA

Figure 3. Map of the South Dartmouth (Allens Pond to Round Hill) showing site names.

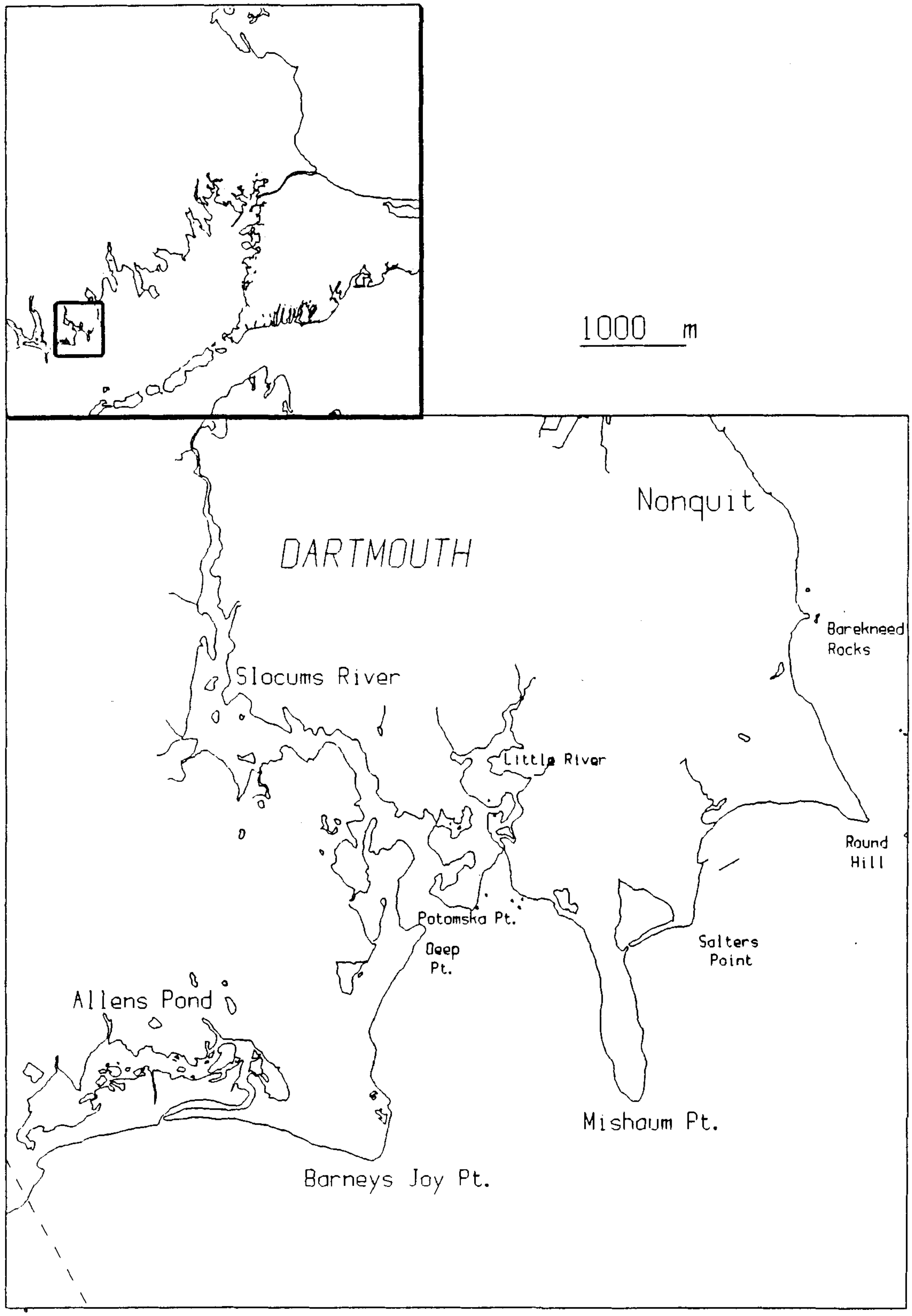

1000 m
Nonquit
DARTMOUTH
Barekneed
Rocks
Slocums River
Little River
Round
Hill
Potomska Pt.
Deep
Pt.
Salters
Point
Allens Pond
Mishaum Pt.
Barneys Joy Pt.

Figure 4. Map of the South Dartmouth (Allens Pond to Round Hill) showing eelgrass beds.

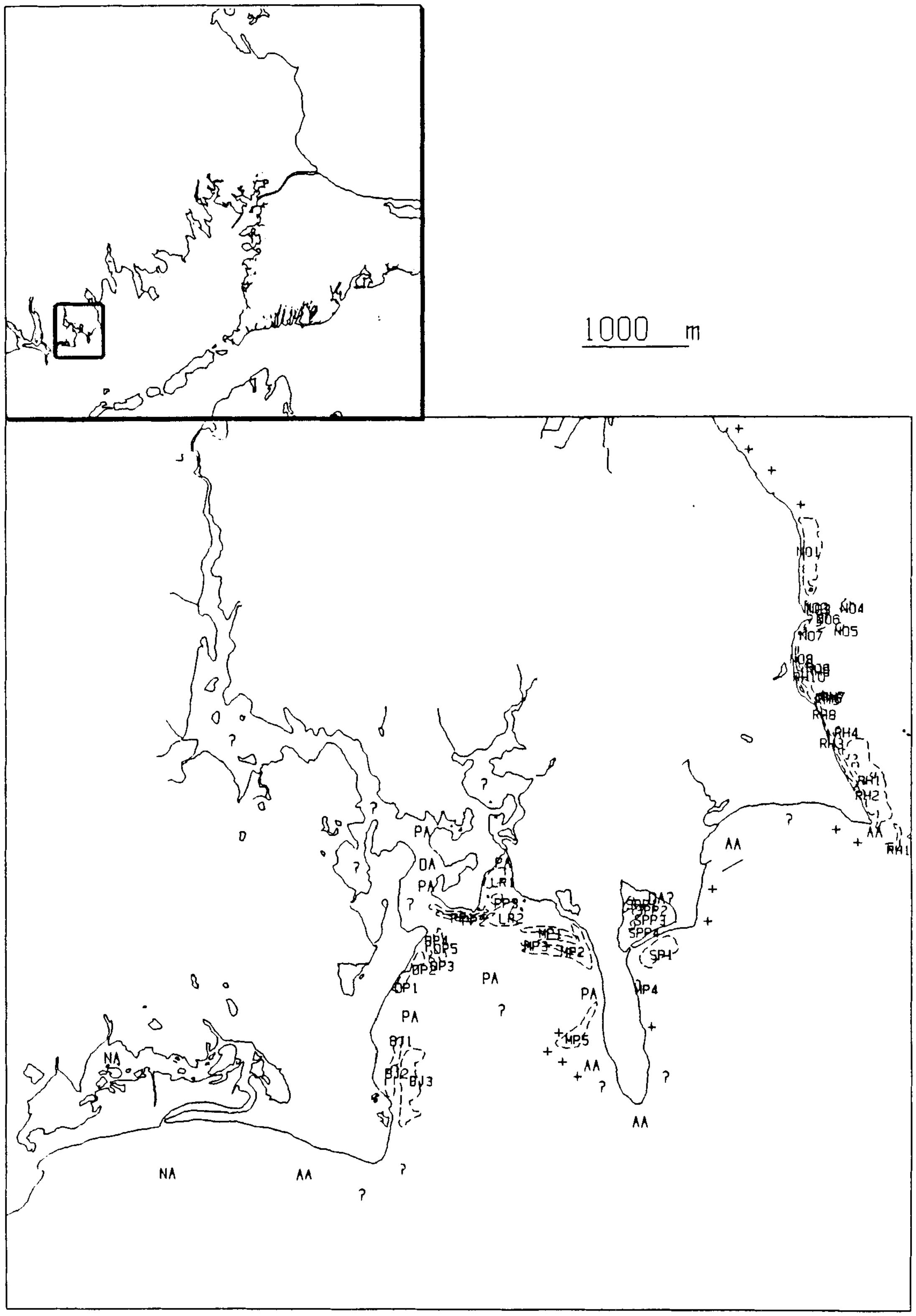

1000 m
NO1
NO4
NO7
NO5
RH8
RH4
RH3
RH1
RH2
AA
PA
DA
LR1
LR2
SPP2
SPP3
SPP4
SP1
MP2
MP3
MP4
MP5
OP1
OP2
OP3
OP5
BJ1
BJ2
BJ3
NA
?

Figure 5. Map of Apponagansett Bay, Dartmouth to New Bedford showing site names.

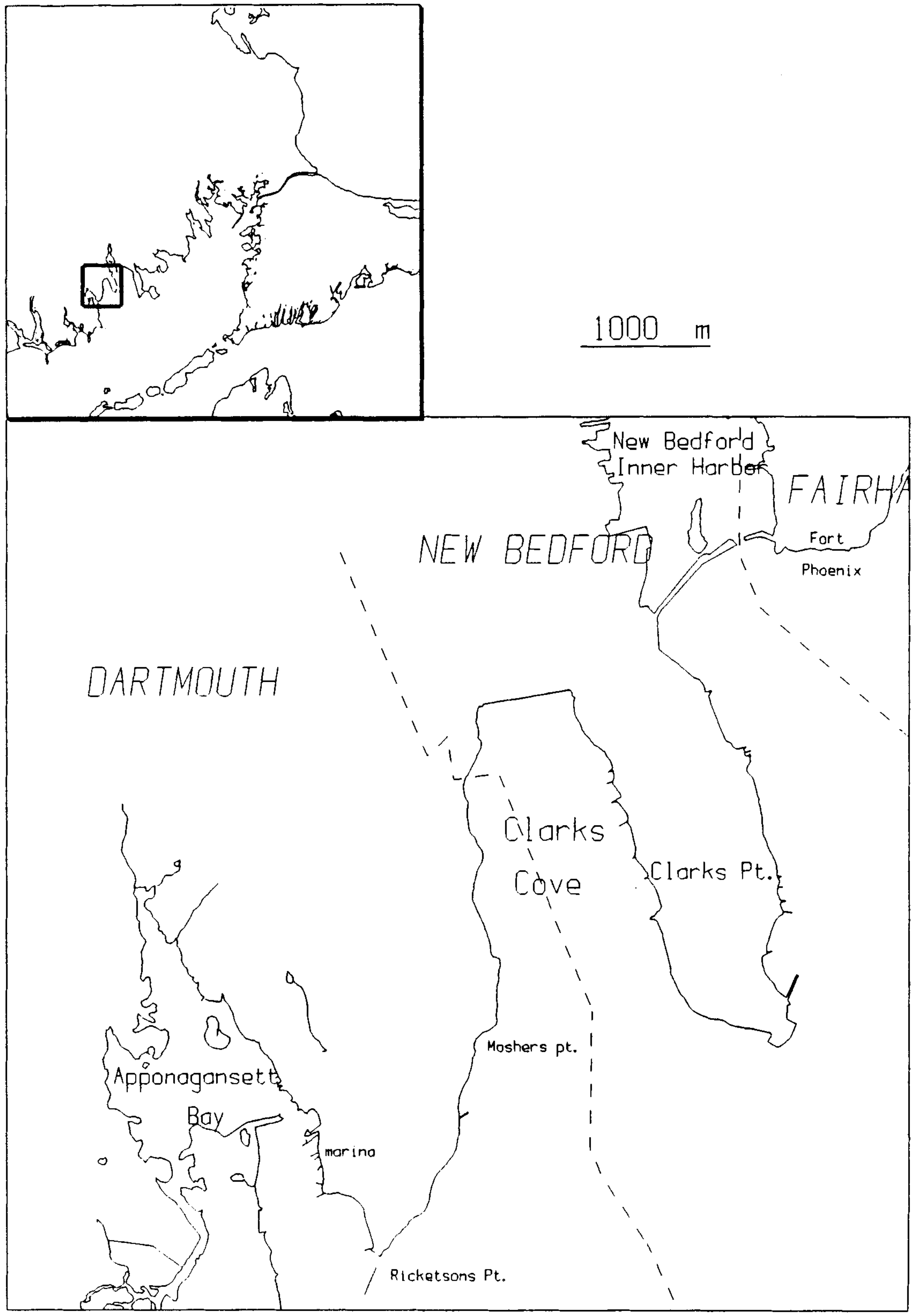

1000 m
New Bedford
Inner Harbor
FAIRH
NEW BEDFORD
Fort
Phoenix
DARTMOUTH
Clarks
Cove
Clarks Pt.
Moshers pt.
Apponagansett
Bay
marina
Ricketsons Pt.

Figure 6. Map of Apponagansett Bay, Dartmouth to New Bedford showing eelgrass beds.

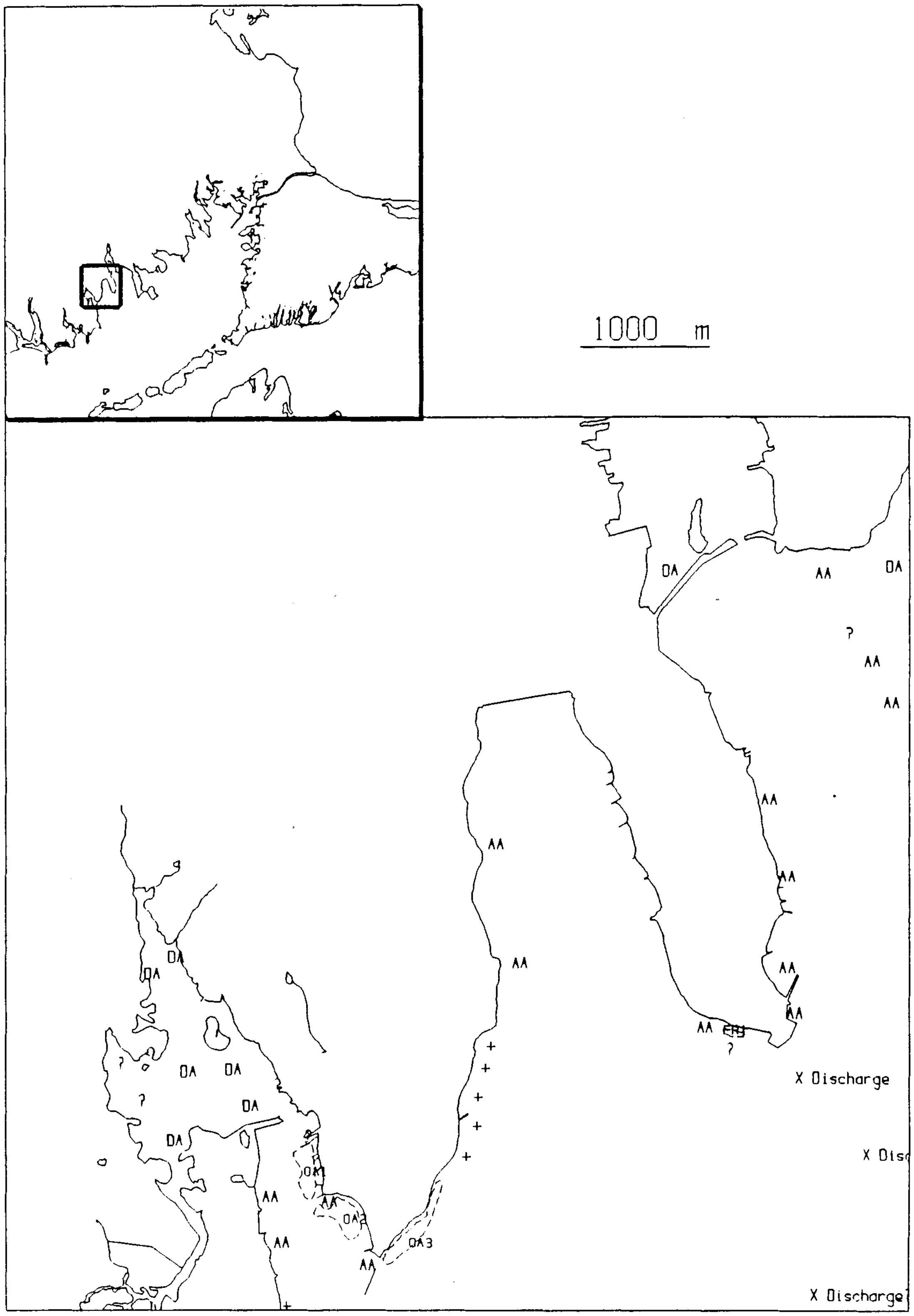

1000 m
DA
AA
DA
?
AA
AA
AA
AA
AA
AA
AA
AA
AA
?
X Discharge
X Disc
X Discharge
DA
DA
?
DA
DA
?
DA
DA
DA1
AA
AA
DA2
AA
DA3
AA
AA
AA

Figure 7. Map of Fairhaven to Brant Island, Mattapoisett showing site names.

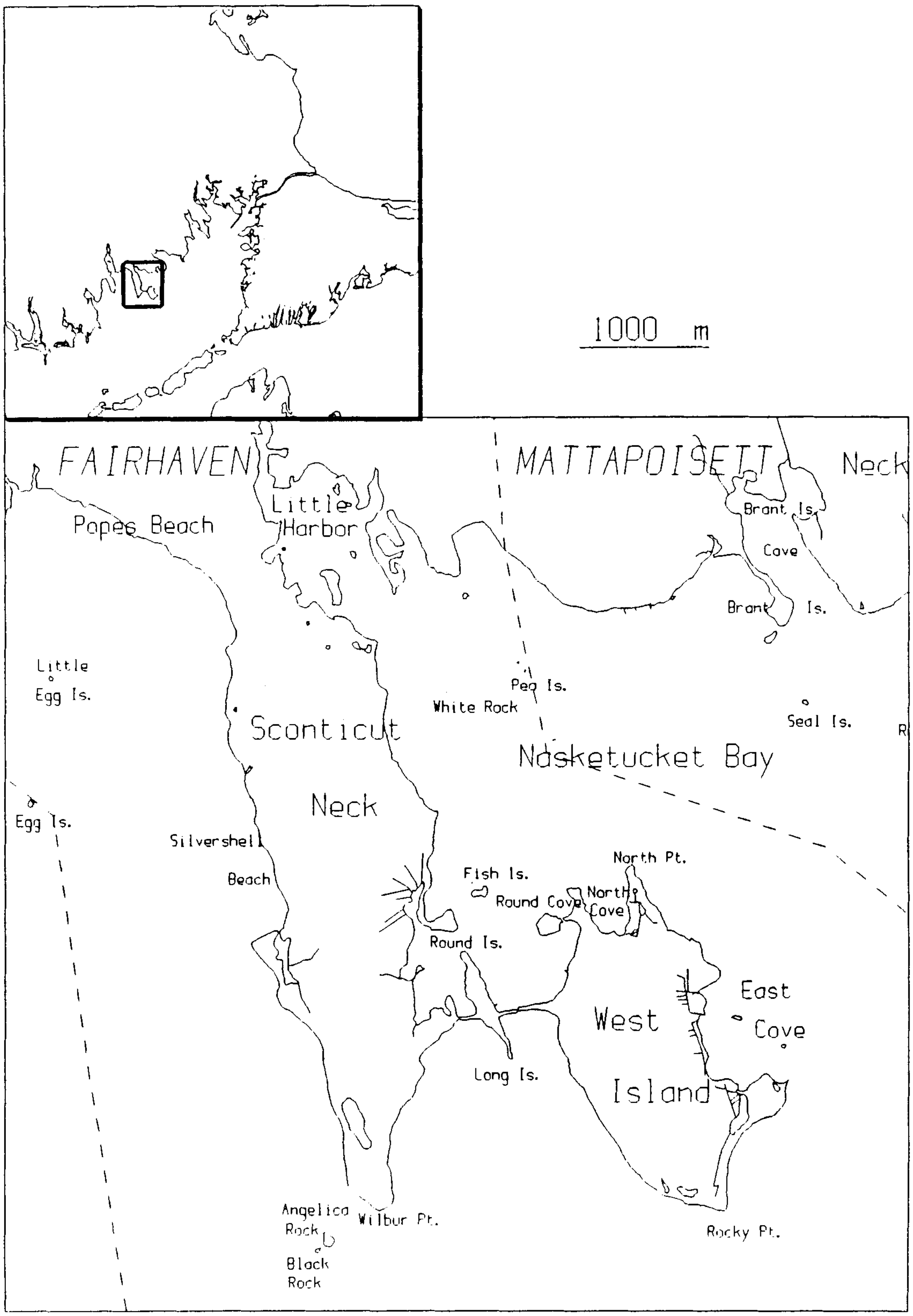

1000 m
FAIRHAVEN
MATTAPOISETT
Neck
Little Harbor
Popes Beach
Brant Is.
Cove
Brant Is.
Little Egg Is.
Peg Is.
White Rock
Seal Is.
Sconticut Neck
Nasketucket Bay
Egg Is.
Silvershell Beach
North Pt.
Fish Is.
Round Cove
North Cove
Round Is.
East Cove
West Island
Long Is.
Angelica Rock
Wilbur Pt.
Black Rock
Rocky Pt.

Figure 8. Map of Fairhaven to Brant Island, Mattapoisett showing eelgrass beds.

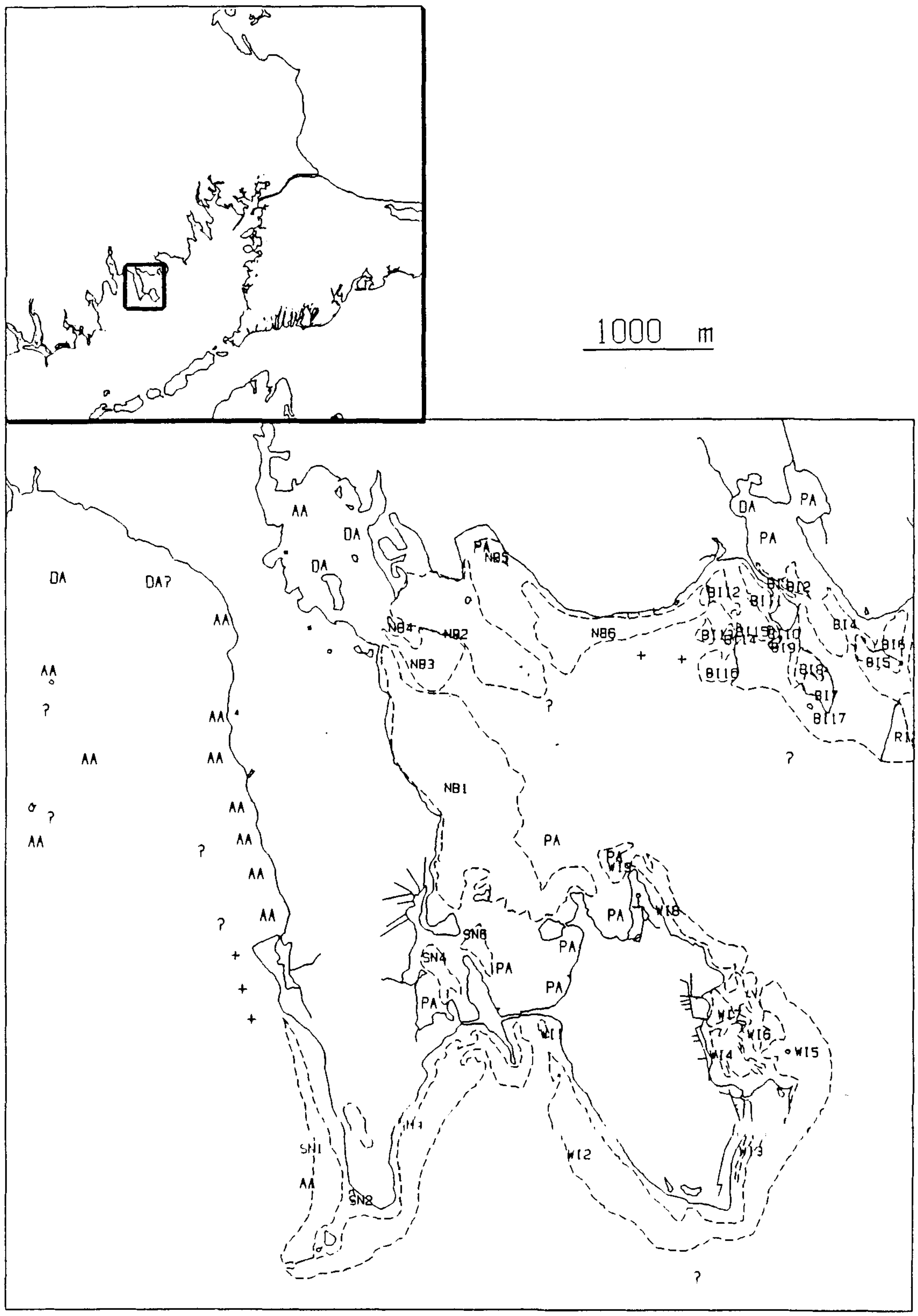

1000 m
DA
PA
DA?
AA
NB1
NB2
NB3
NB4
NB5
NB6
BI7
BI8
BI9
BI10
BI11
BI12
BI14
BI15
BI16
BI17
SN1
SN2
SN4
SN8
WI1
WI2
WI3
WI4
WI5
WI6
WI8
WI9
RI

Figure 9. Map of Mattapoisett Harbor and vicinity showing site names.

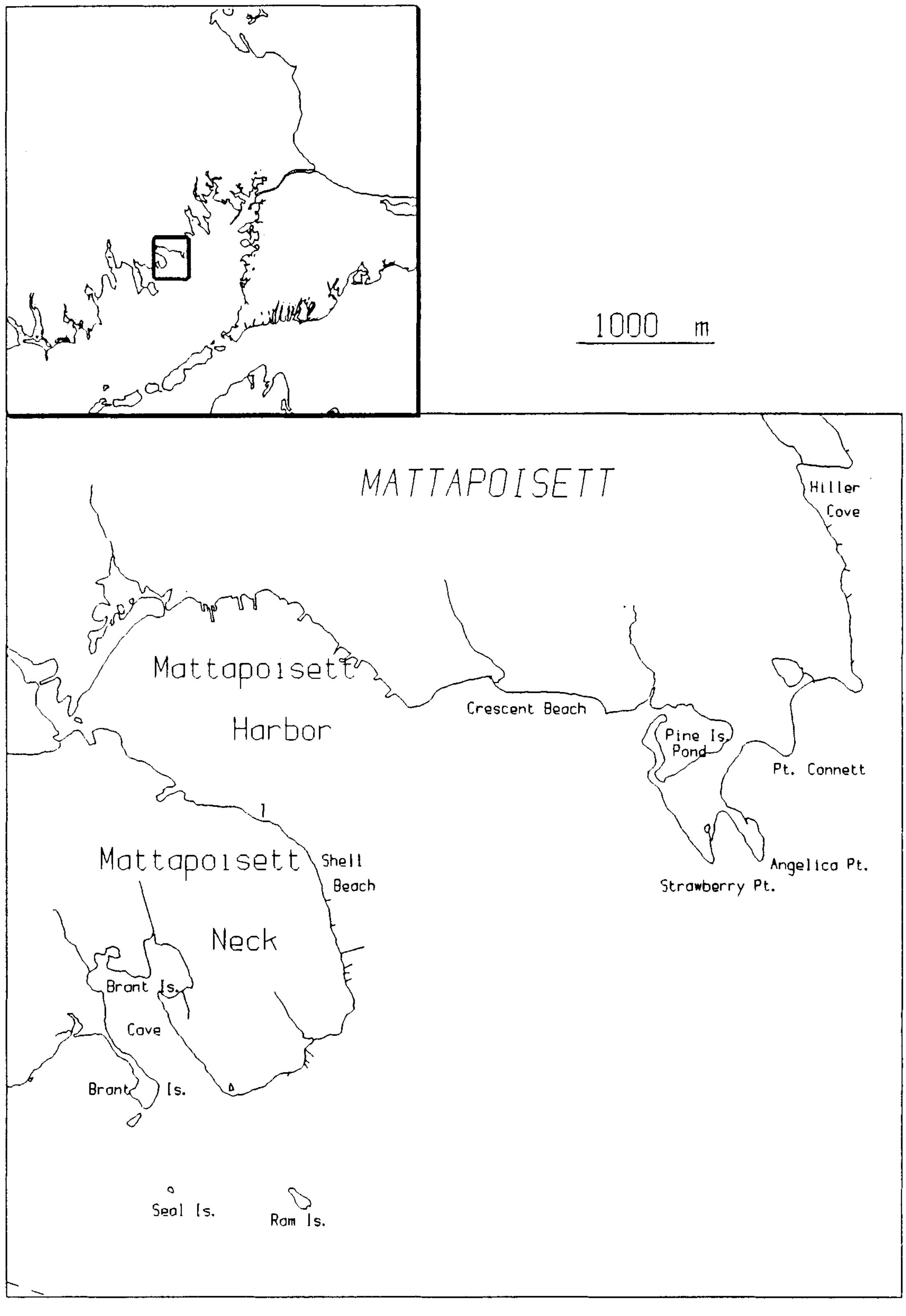

1000 m
MATTAPOISETT
Hiller Cove
Mattapoisett Harbor
Crescent Beach
Pine Is. Pond
Pt. Connett
Mattapoisett Neck
Shell Beach
Angelica Pt.
Strawberry Pt.
Brant Is. Cove
Brant Is.
Seal Is.
Ram Is.

Figure 10. Map of Mattapoisett Harbor and vicinity showing eelgrass beds.

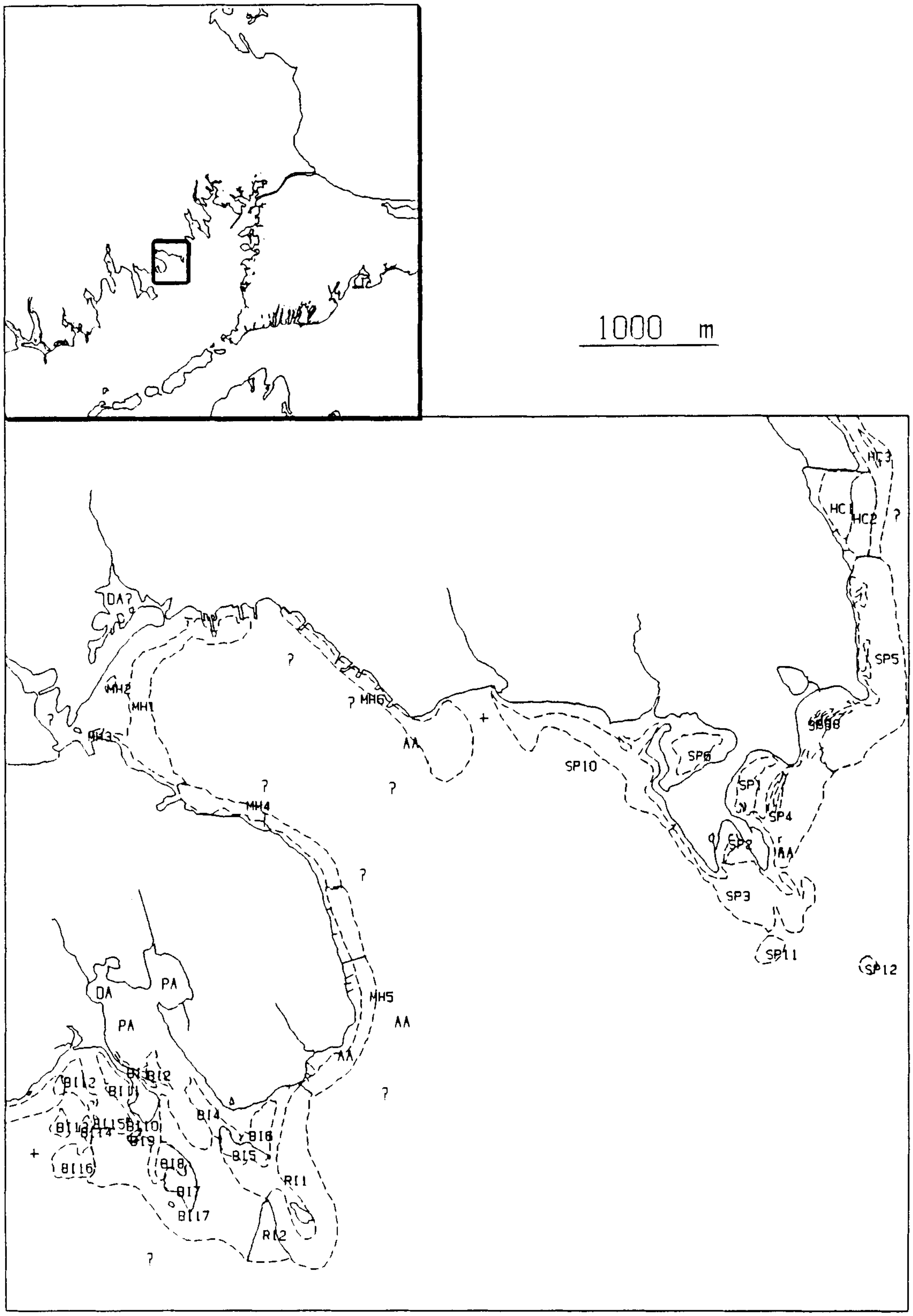
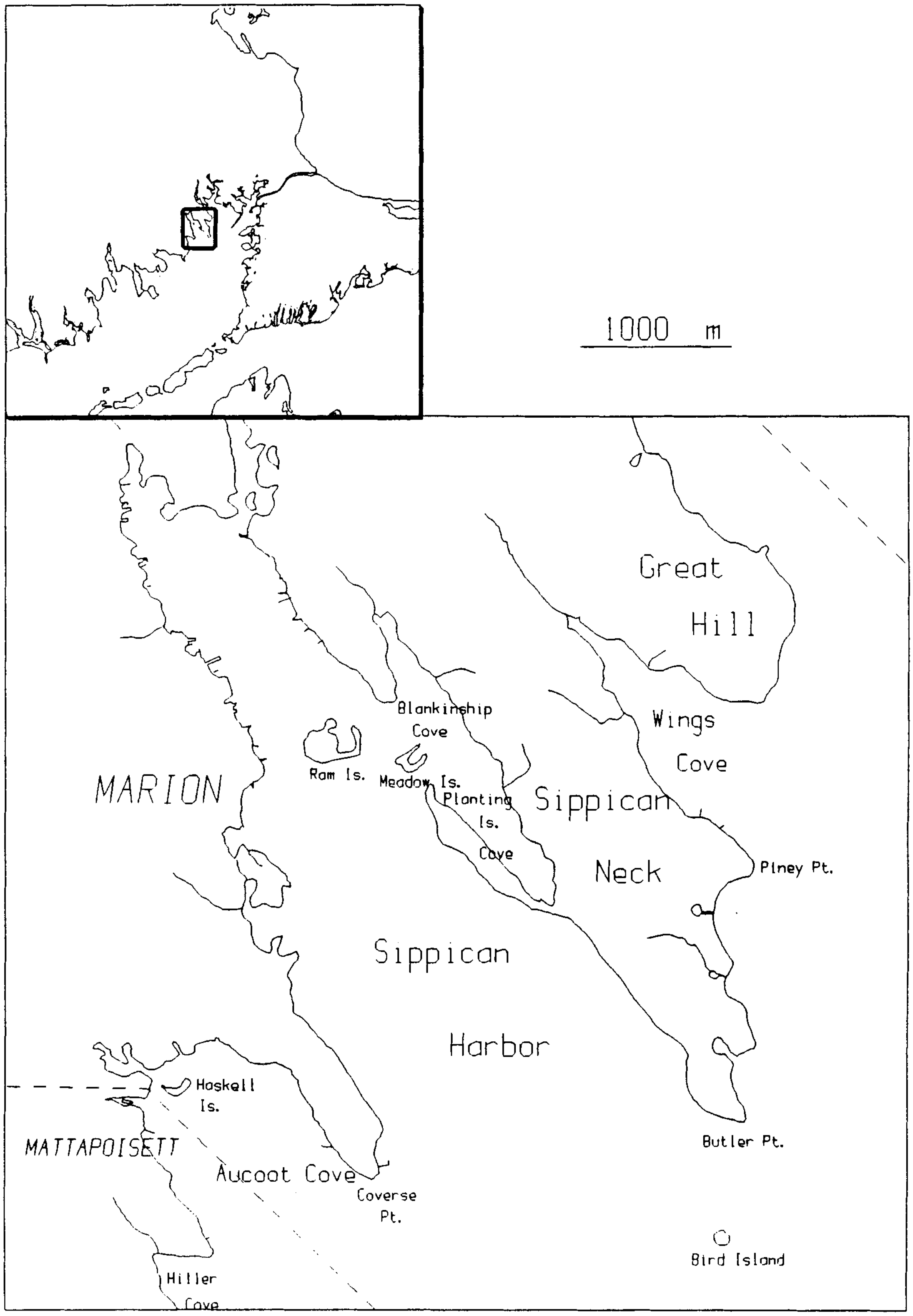

1000 m
HC3
HC1
HC2
SP5
SP6
SP10
SP7
SP4
SP2
SP3
SP11
SP12
DA?
MH2
MH1
MH3
MH6
MH4
MH5
AA
DA
PA
BI2
BI1
BI4
BI6
BI5
BI16
BI8
BI7
BI17
RI1
RI2

Figure 11. Map of Hiller Cove, Mattapoisett to Marion showing site names.



1000 m
Great
Hill
Wings
Cove
Blankinship
Cove
Ram Is.
Meadow Is.
Planting
Is.
Cove
Sippican
Neck
Piney Pt.
MARION
Sippican
Harbor
Haskell
Is.
MATTAPOISETT
Aucoot Cove
Coverse
Pt.
Butler Pt.
Bird Island
Hiller
Cove

Figure 12. Map of Hiller Cove, Mattapoisett to Marion showing eelgrass beds.

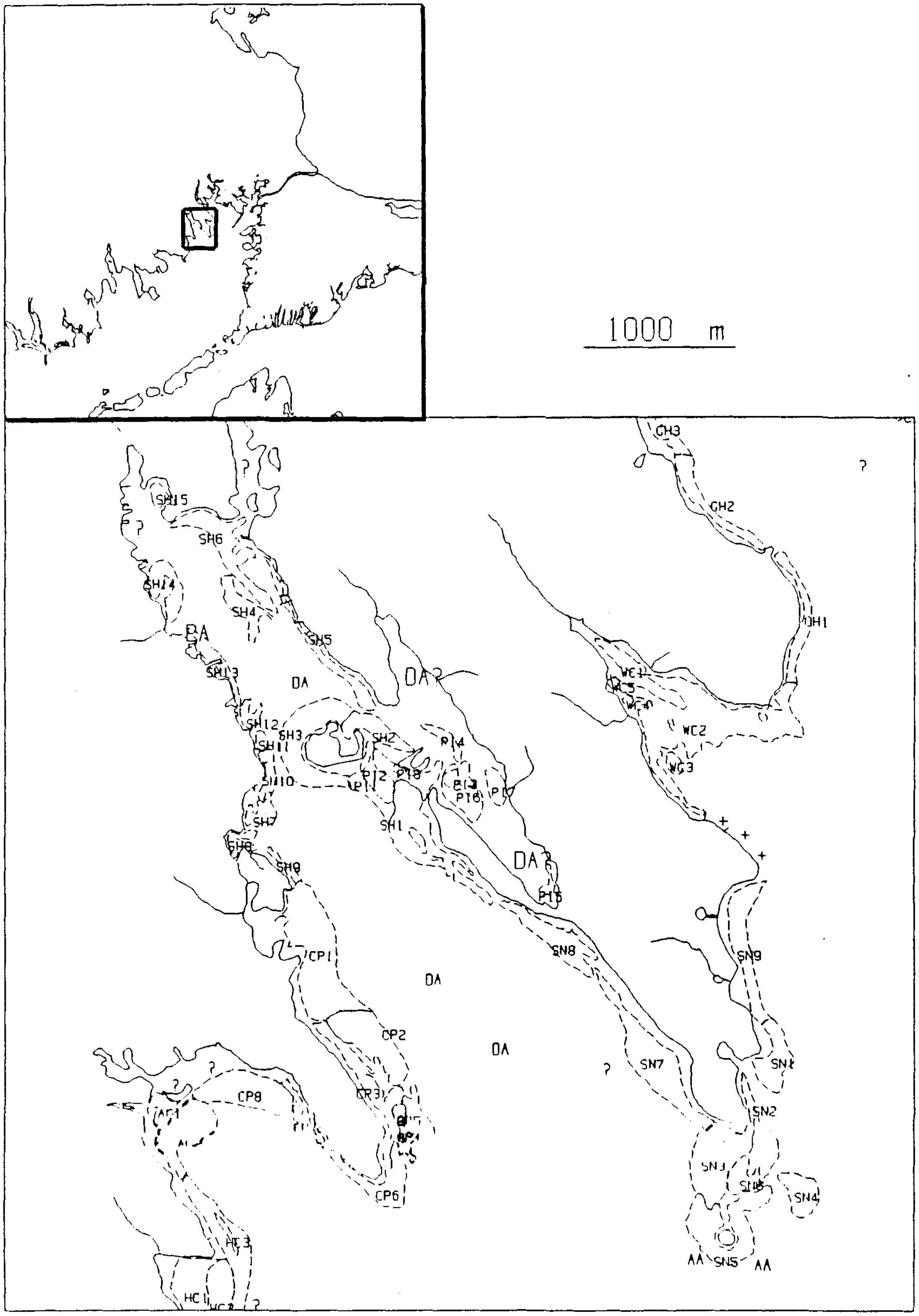

1000 m
CH3
CH2
CH1
SH15
SH6
SH14
SH4
SH5
DA
SH13
DA?
WC1
WC2
WC3
SH12
SH3
SH2
P14
SH11
SH10
P18
P16
P17
SH7
SH1
SH8
SH9
DA?
P15
SN8
SN9
CP1
DA
CP2
DA
SN7
CP8
SN1
SN2
CP6
SN3
SN4
HC3
SN5
AA
HC1

Figure 13. Map of Sippican Neck, Marion to Great Neck, Wareham showing site names.

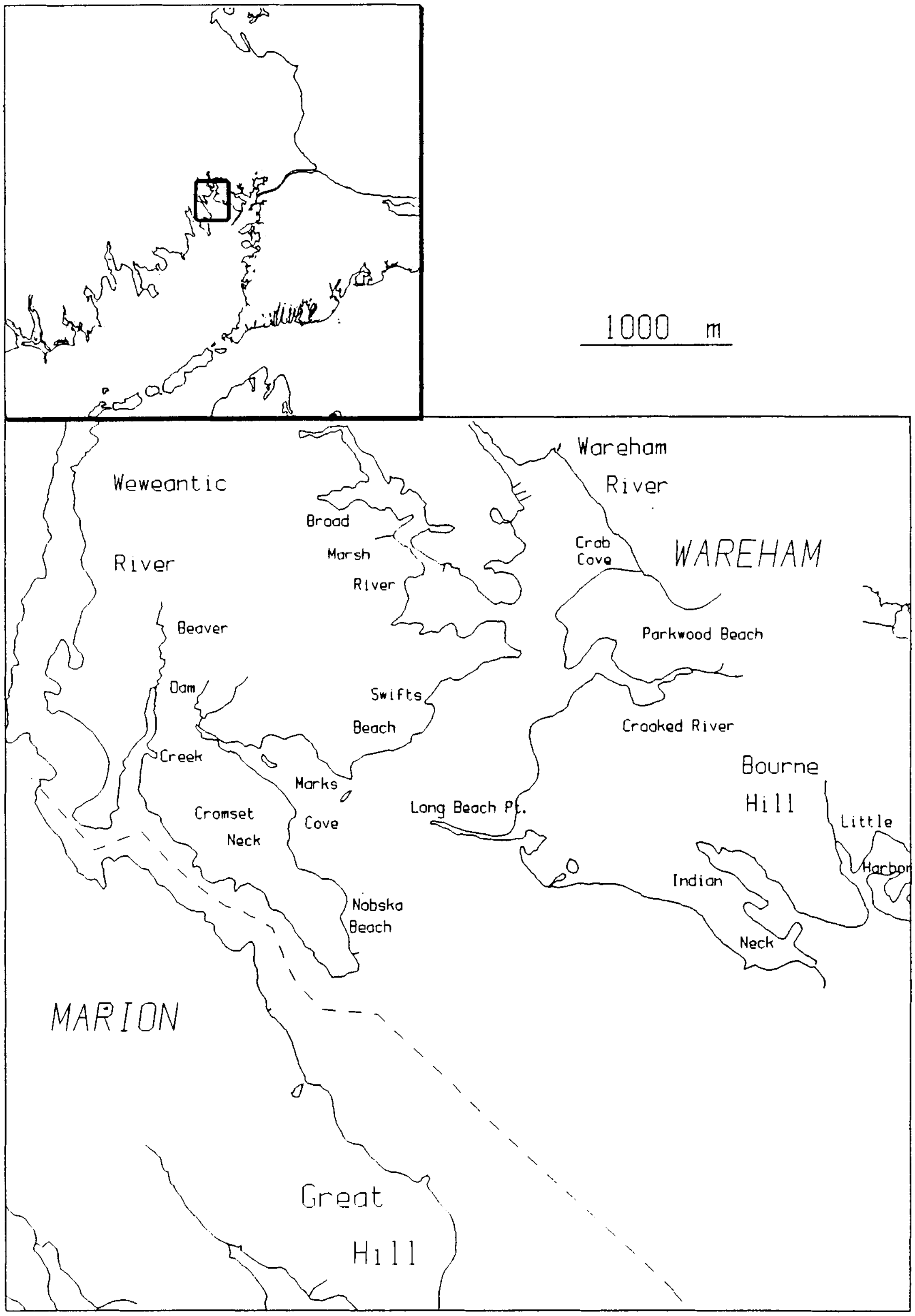

1000 m
Wareham
River
Weweantic
River
Broad
Marsh
River
Crab
Cove
WAREHAM
Parkwood Beach
Beaver
Dam
Creek
Swifts
Beach
Crooked River
Bourne
Hill
Marks
Cove
Long Beach Pt.
Cromset
Neck
Little
Harbor
Indian
Neck
Nobska
Beach
MARION
Great
Hill

Figure 14. Map of Sippican Neck, Marion to Great Neck, Wareham showing eelgrass beds.

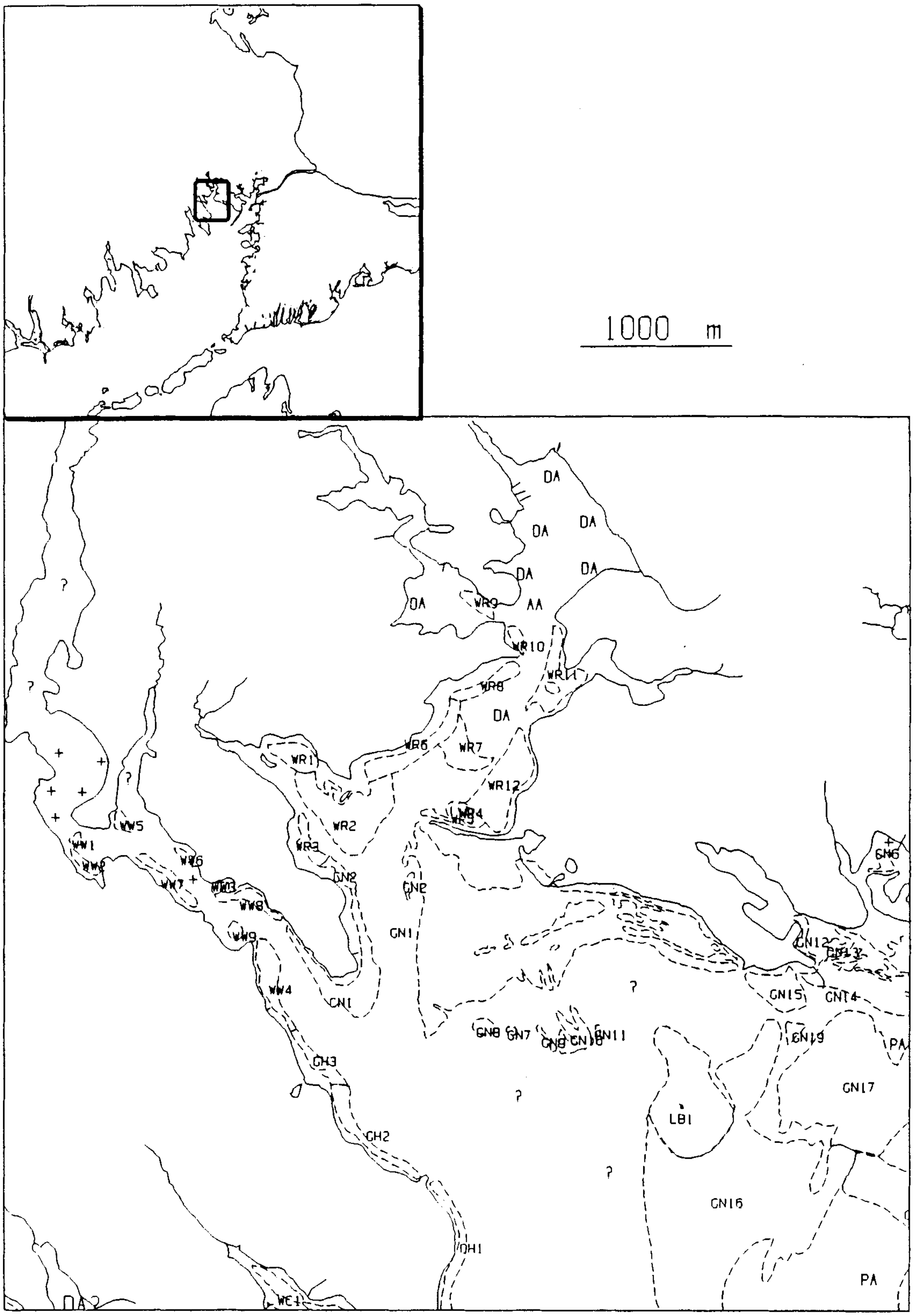

1000 m
DA
AA
WR1
WR2
WR3
WR6
WR7
WR8
WR9
WR10
WR11
WR12
WW1
WW2
WW3
WW4
WW5
WW6
WW7
WW8
WW9
GN1
GN2
GN6
GN7
GN8
GN11
GN12
GN14
GN15
GN16
GN17
GN19
CH2
CH3
DH1
LB1
PA

Figure 15. Map of Great Neck, Wareham to Pocasset, Bourne showing site names.

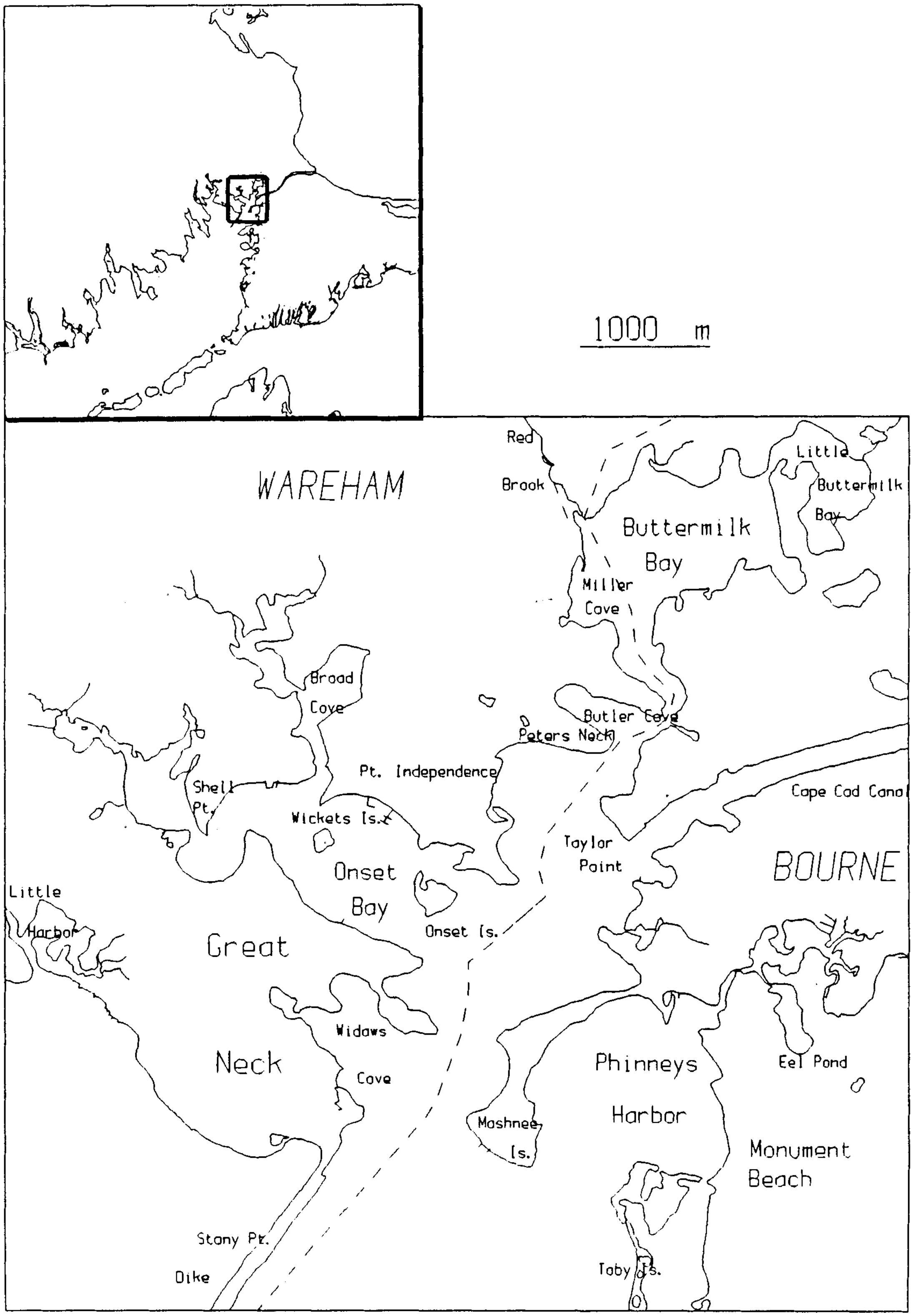

1000 m
WAREHAM
Red
Brook
Buttermilk
Bay
Little
Buttermilk
Bay
Miller
Cove
Broad
Cove
Butler Cove
Peters Neck
Pt. Independence
Shell
Pt.
Wickets Is.
Cape Cod Canal
Taylor
Point
BOURNE
Onset
Bay
Onset Is.
Little
Harbor
Great
Neck
Widows
Cove
Phinneys
Harbor
Eel Pond
Mashnee
Is.
Monument
Beach
Stony Pt.
Dike
Toby Is.

Figure 16. Map of Great Neck, Wareham to Pocasset, Bourne showing eelgrass beds.

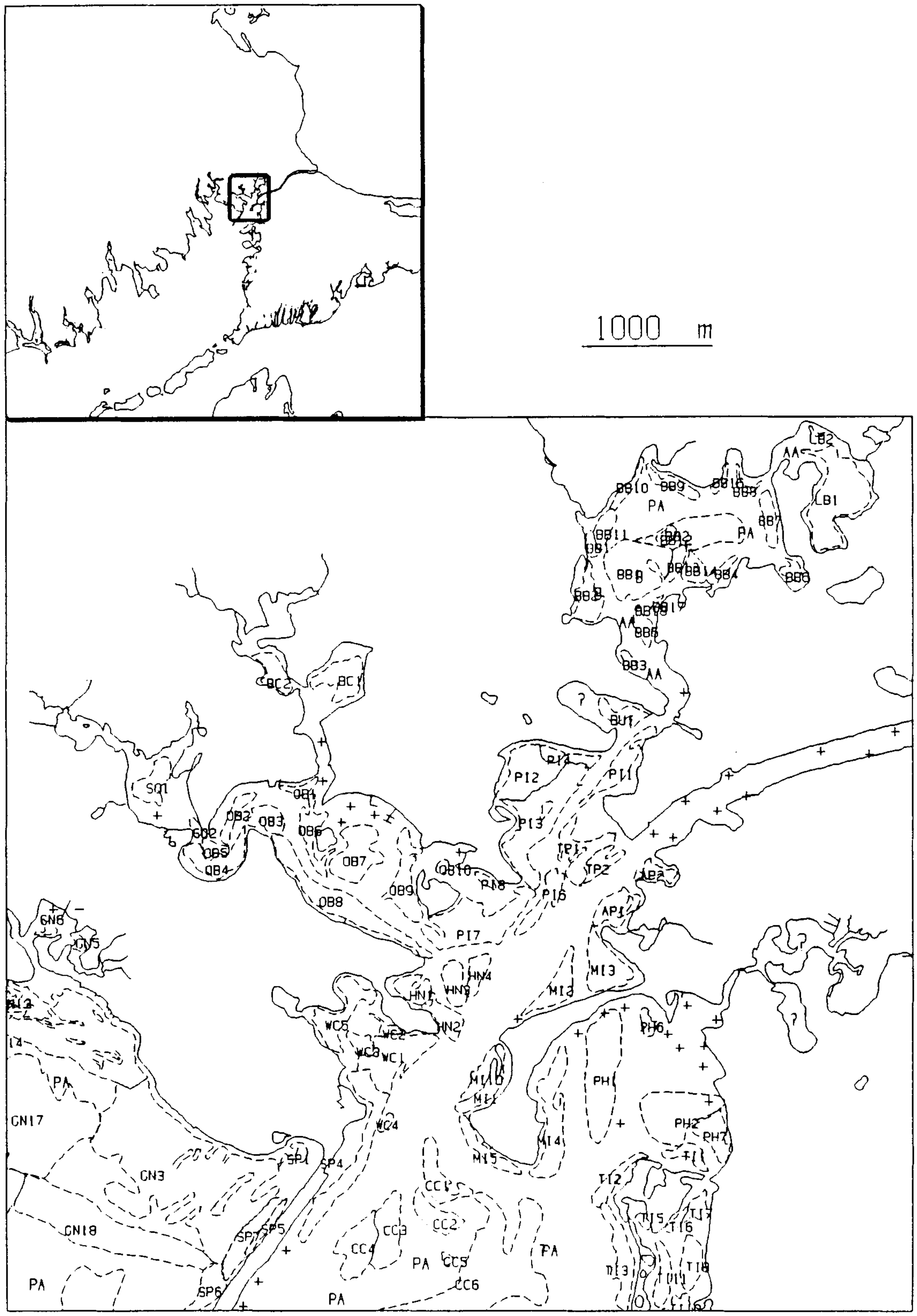

1000 m

Figure 17. Map of Bourne (Wings Neck to Megansett) showing site names.

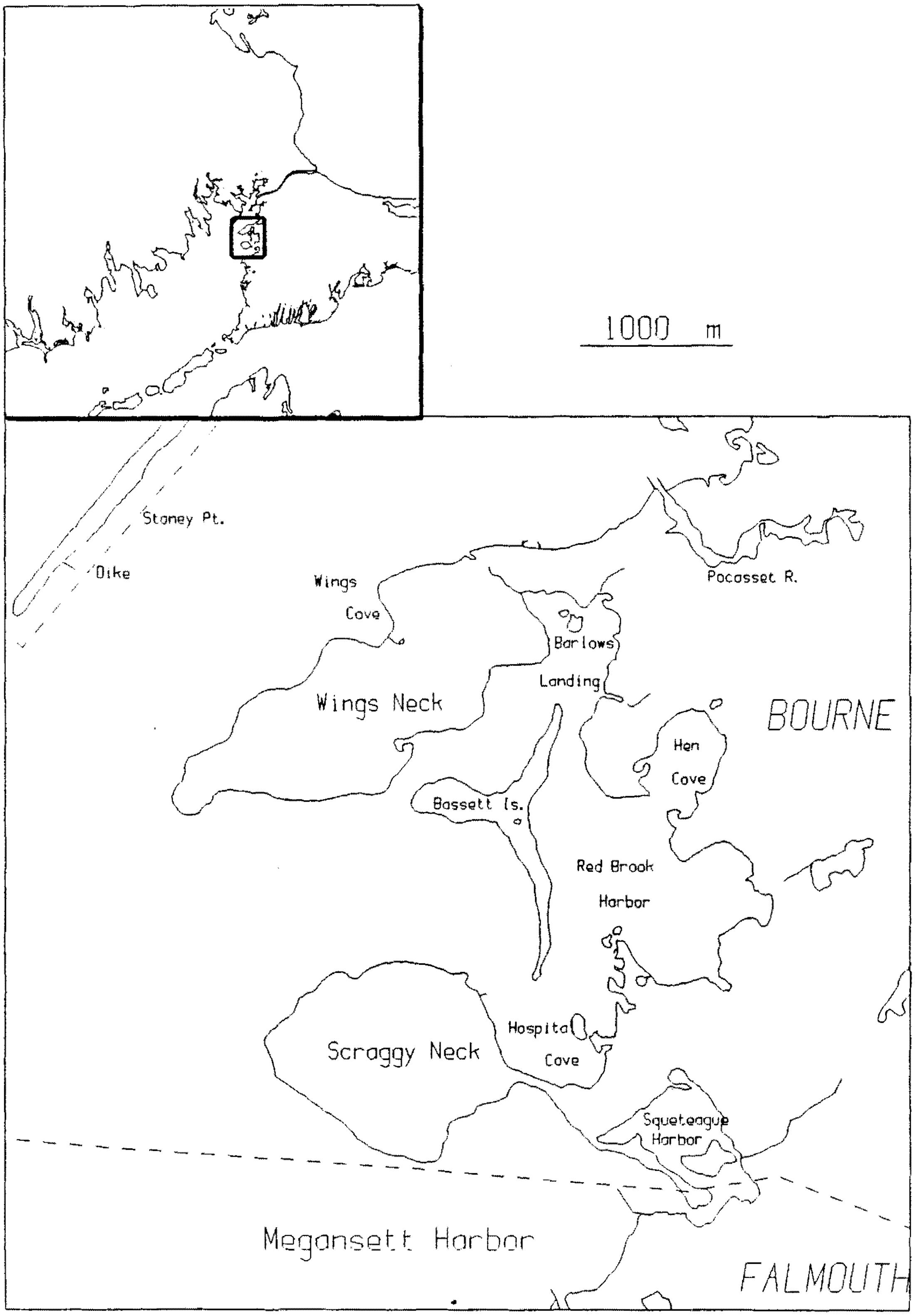

1000 m
Stoney Pt.
Dike
Wings
Cove
Pocasset R.
Barlows
Landing
Wings Neck
BOURNE
Hen
Cove
Bassett Is.
Red Brook
Harbor
Hospital
Cove
Scraggy Neck
Squeteague
Harbor
Megansett Harbor
FALMOUTH

Figure 18. Map of Bourne (Wings Neck to Megansett) showing eelgrass beds.

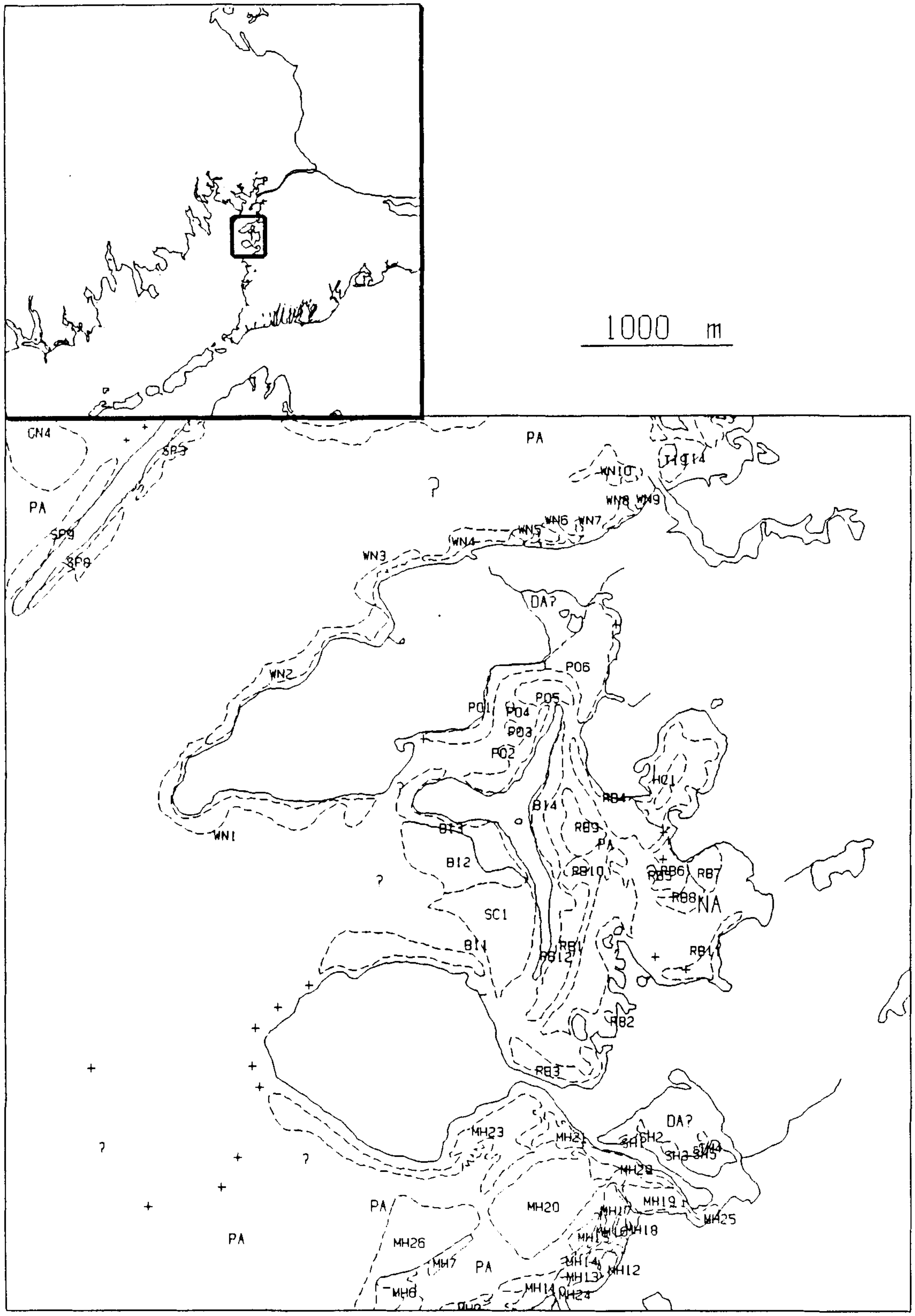

1000 m
PA
CN4
SP3
SP9
SP8
WN10
TH1
TH4
WN8
WN9
WN6
WN7
WN5
WN4
WN3
DA?
WN2
P06
P05
P01
P04
P03
P02
HC1
RB4
B14
RB9
B13
WN1
B12
RB10
RB6
RB7
RB8
NA
SC1
B11
RB1
RB12
RB2
RB3
MH23
MH2
SH2
SH3
SH5
MH28
MH20
MH19
MH17
MH18
MH25
MH26
MH7
MH14
MH13
MH12
MH11
MH24
MH8

Figure 19. Map of Falmouth (Megansett to West Falmouth Harbor) showing site names.

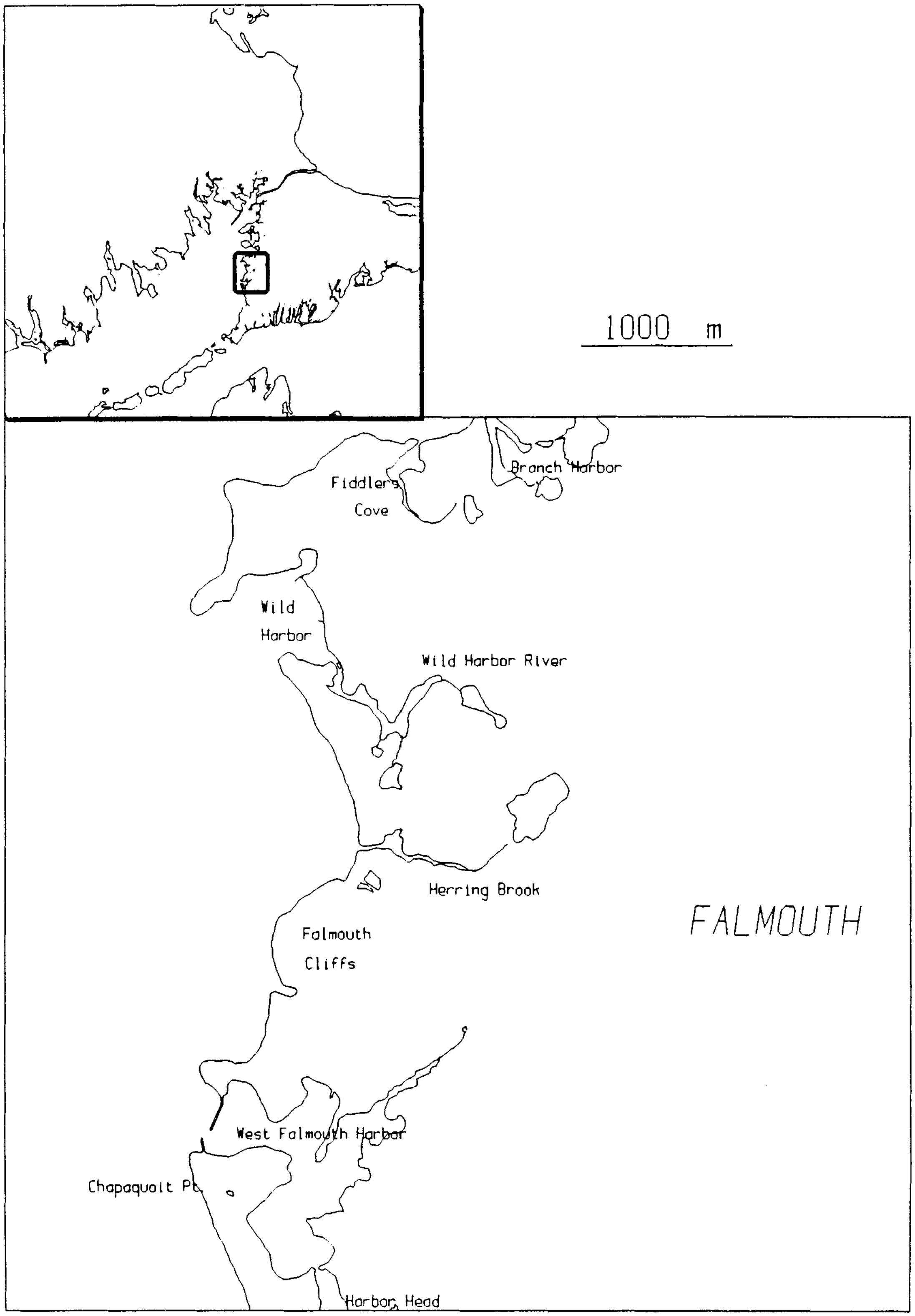

1000 m
Branch Harbor
Fiddlers
Cove
Wild
Harbor
Wild Harbor River
Herring Brook
FALMOUTH
Falmouth
Cliffs
West Falmouth Harbor
Chapaquoit Pt.
Harbor Head

Figure 20. Map of Falmouth (Megansett to West Falmouth Harbor) showing eelgrass beds.

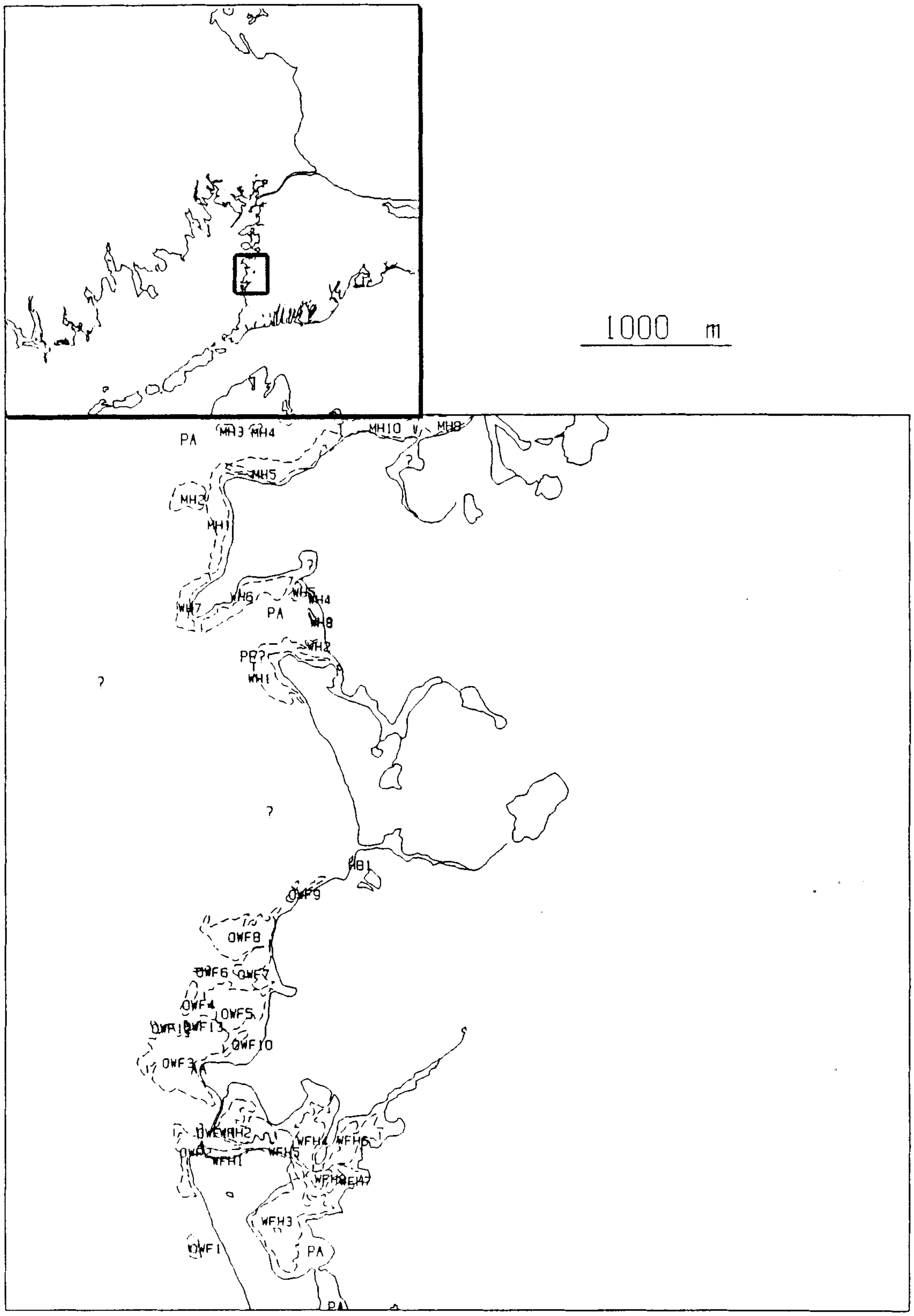

1000 m
PA
MH3
MH4
MH10
MH8
MH5
MH2
MH1
WH7
WH6
WH5
WH4
PA
WH3
WH2
PR?
WH1
PB1
OWF9
OWF8
OWF6
OWF7
OWF4
OWF5
OWF13
OWF10
OWF3
WFH1
WFH5
WFH4
WFH6
WFH3
PA
OWF1
PA

Figure 21. Map of Falmouth (Chappaquoit Point to Gunning Point) showing site names.

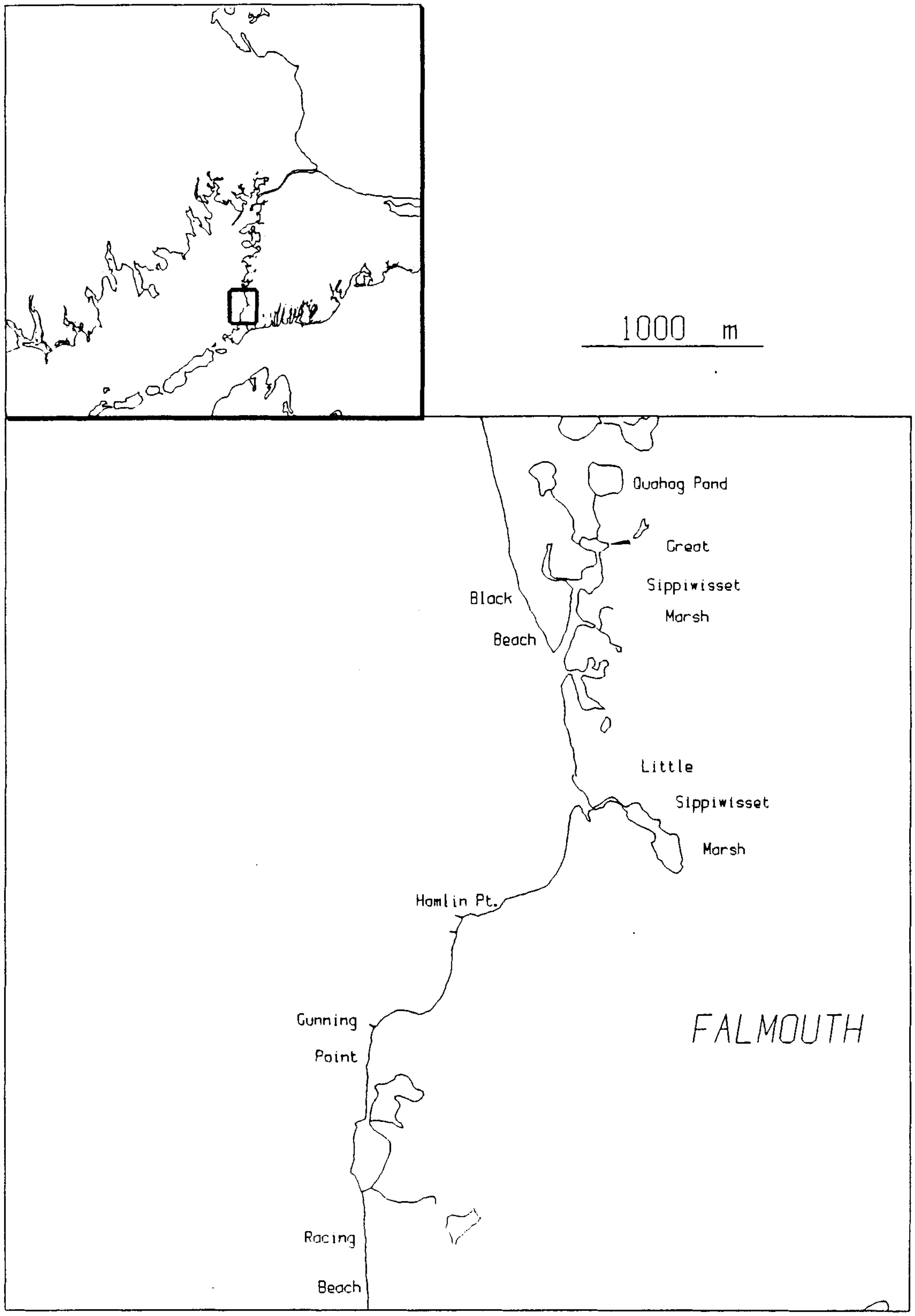

1000 m
Quahog Pond
Great
Sippiwisset
Marsh
Black
Beach
Little
Sippiwisset
Marsh
Hamlin Pt.
Gunning
Point
FALMOUTH
Racing
Beach

Figure 22. Map of Falmouth (Chappaquoit Point to Gunning Point) showing eelgrass beds.

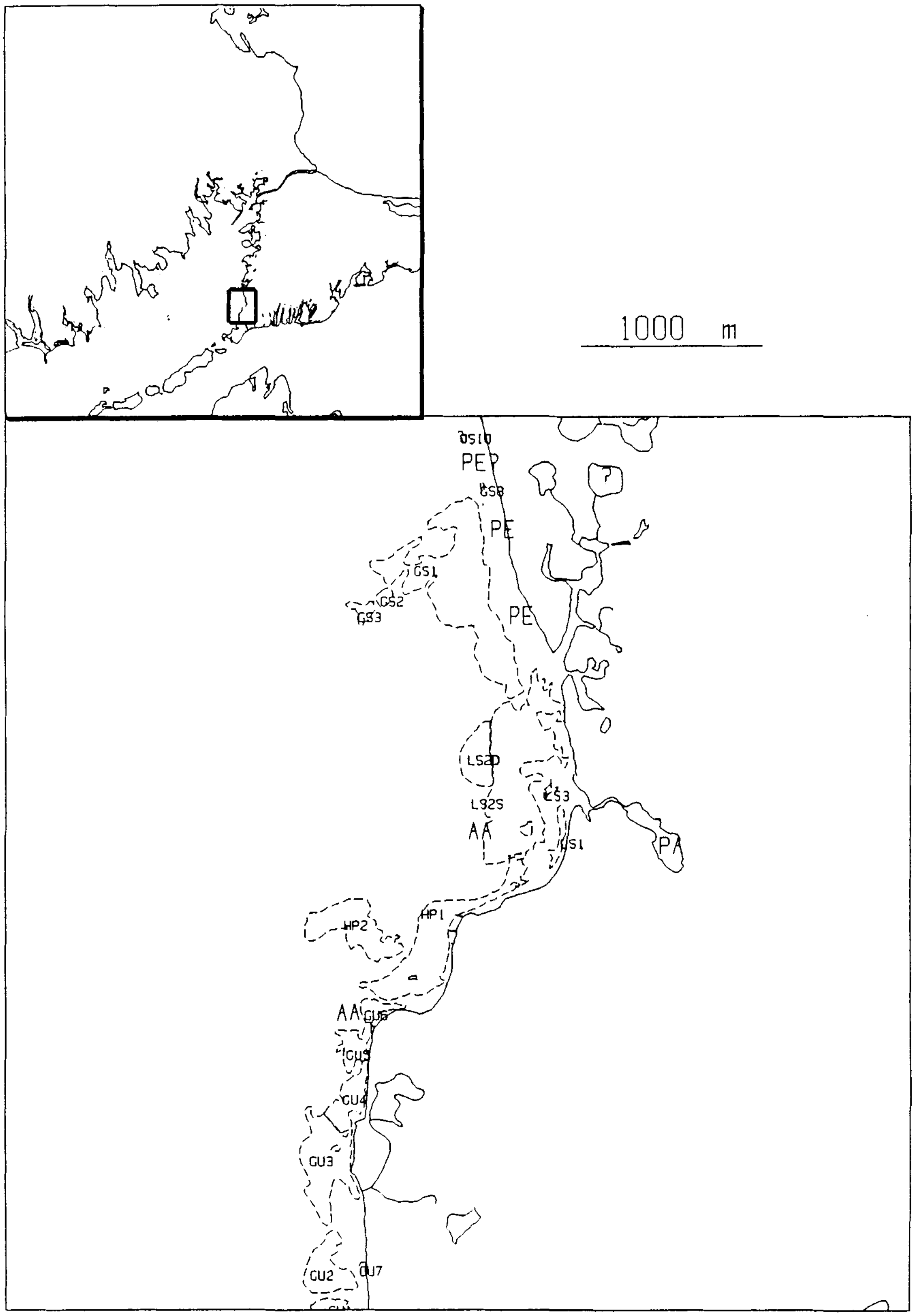

1000 m
PE
GS8
GS1
GS2
GS3
LS2D
LS2S
LS3
AA
LS1
PA
HP1
HP2
GU6
GU5
GU4
GU3
GU2
GU7

Figure 23. Map of Falmouth (Woods Hole area) showing site names.

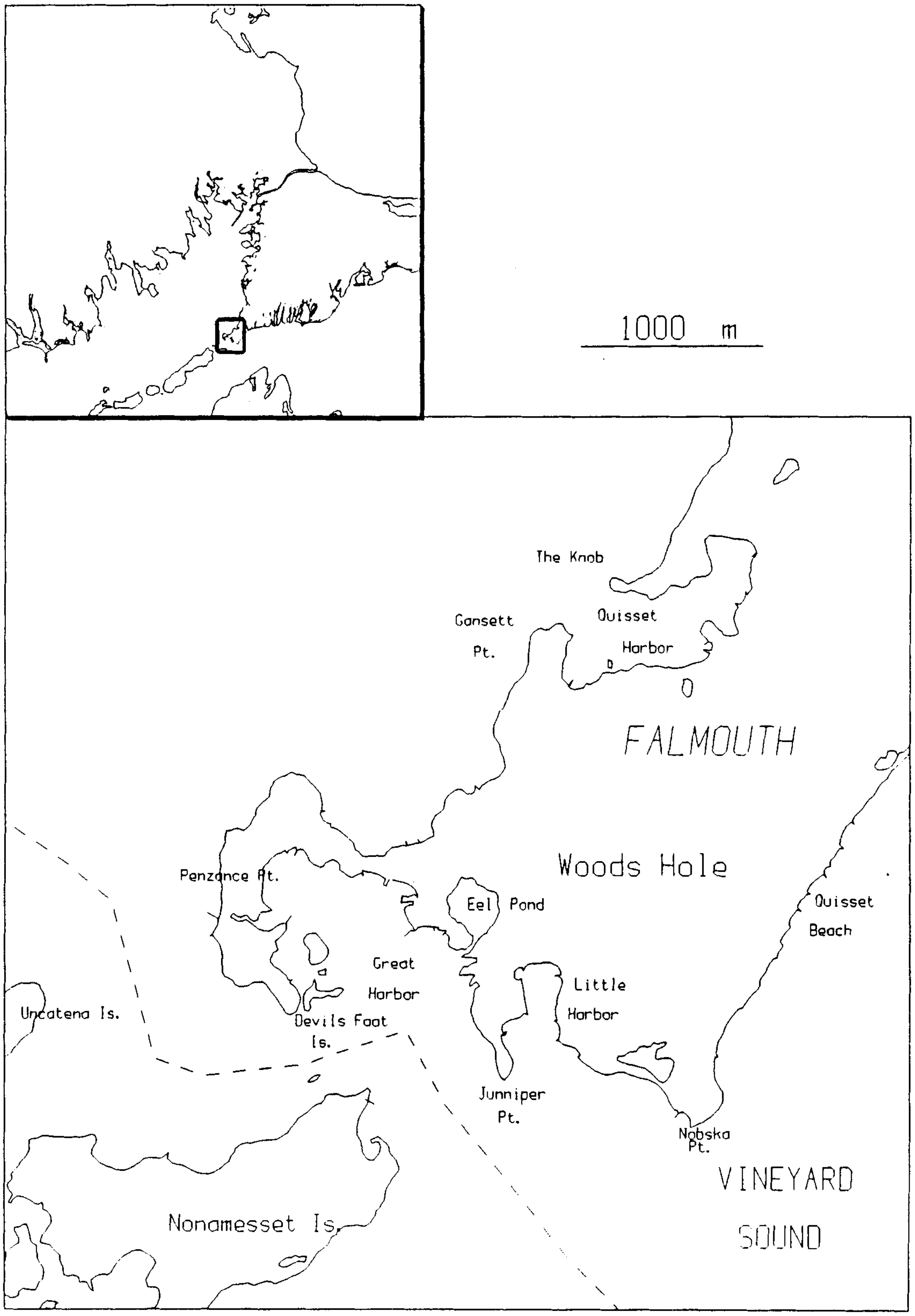
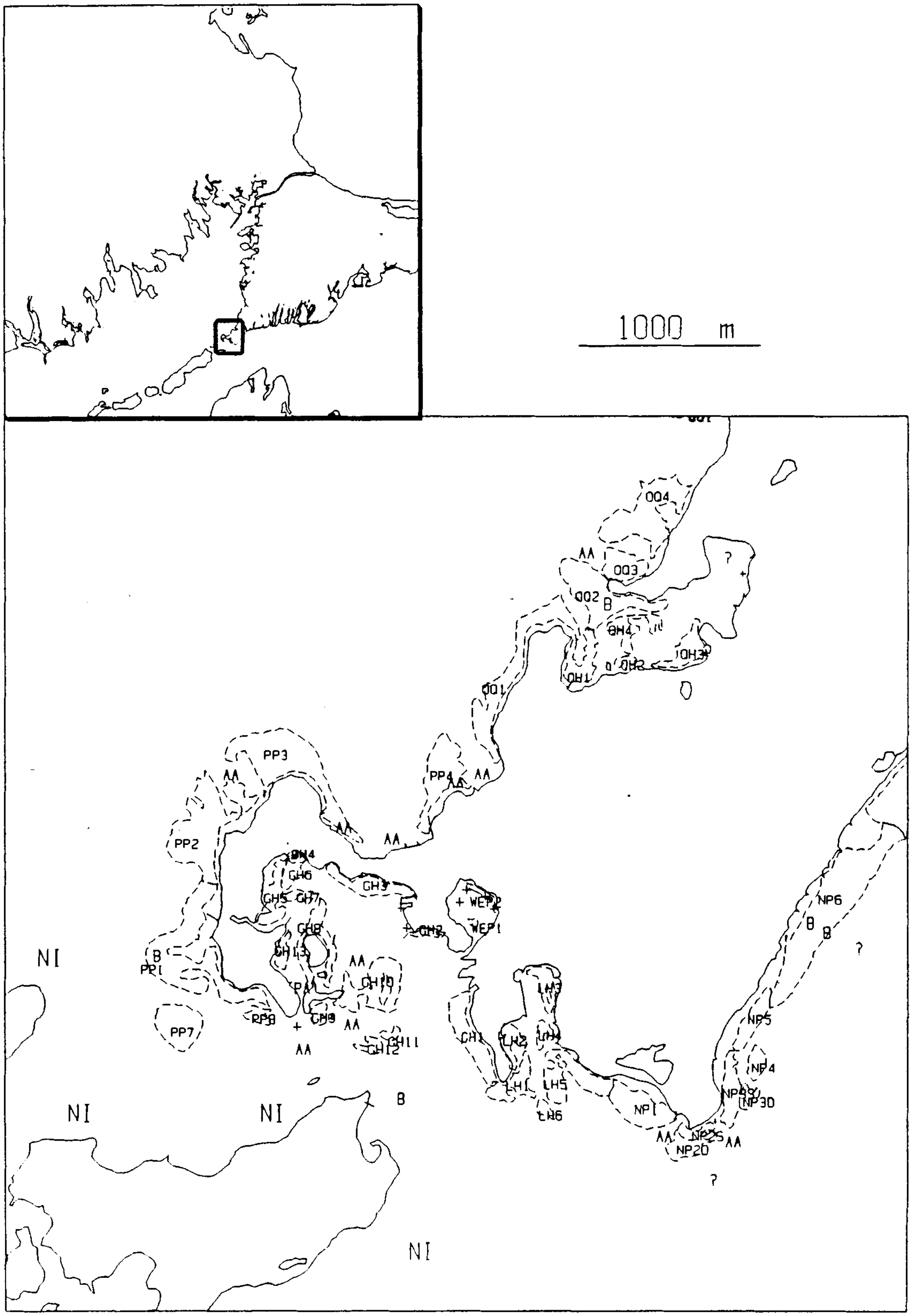

1000 m
The Knob
Gansett
Pt.
Quisset
Harbor
FALMOUTH
Woods Hole
Penzance Pt.
Eel Pond
Quisset
Beach
Great
Harbor
Little
Harbor
Uncatena Is.
Devils Foot
Is.
Junniper
Pt.
Nobska
Pt.
VINEYARD
SOUND
Nonamesset Is.

Figure 24. Map of Falmouth (Woods Hole area) showing eelgrass beds.


1000 m
OO4
OO3
OO2
OH4
OH3
OH2
OH1
OO1
PP3
PP4
PP2
PP1
PP7
PP8
GH3
GH6
GH5
GH7
GH8
GH13
GH10
GH9
GH11
GH12
WEP2
WEP1
LH3
LH2
LH1
LH5
LH6
NP6
NP5
NP4
NP30
NP1
NP25
NP20
NI
NI
NI
NI
B

Appendix III

Alphabetized listing of mapped eelgrass beds by town.

(Note: On the maps, the first two letters of the bed name (town ID) are omitted. All areas are in hectares).

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
Bourne beds				BOCC2	6.1	75	4.59
BOAP1	5.9	85	4.99	BOCC3	10.1	70	7.06
BOAP2	2.8	50	1.41	BOCC4	10.4	40	4.15
BOBB1	17.9	70	12.51	BOCC5	0.7	40	0.26
BOBB10	2.4	35	0.85	BOCC6	56.4	85	47.92
BOBB11	3.3	40	1.31	BOHC1	14.3	45	6.41
BOBB12	1.5	40	0.60	BOHN4	3.9	90	3.49
BOBB13	2.4	30	0.72	BOLB1	22.1	70	15.45
BOBB14	3.3	85	2.77	BOLB2	0.4	30	0.11
BOBB16	1.1	70	0.77	BOMH21	4.0	85	3.39
BOBB17	0.4	50	0.18	BOMH23	29.1	85	24.75
BOBB18	0.1	50	0.04	BOMH29	4.4	75	3.30
BOBB2	14.7	20	2.94	BOMI1	5.5	70	3.86
BOBB4	1.8	60	1.10	BOMI1D	4.6	60	2.74
BOBB5	2.7	10	0.27	BOMI2	7.3	80	5.80
BOBB6	2.0	50	0.99	BOMI3	10.3	70	7.22
BOBB7	4.0	65	2.60	BOMI4	14.0	95	13.28
BOBB8	1.3	75	0.94	BOMI5	4.9	60	2.93
BOBB9	3.5	70	2.45	BOPH1	22.0	95	20.87
BOBI1	26.9	85	22.90	BOPH2	17.7	85	15.01
BOBI2	19.9	65	12.93	BOPH6	1.8	35	0.63
BOBI3	12.8	90	11.55	BOPH7	6.1	40	2.44
BOBI4	8.3	85	7.08	BOPI1	7.1	40	2.85
BOCC1	7.5	35	2.62	BOPI6	5.6	80	4.49

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
BOPO1	8.0	80	6.36	BOTI1	3.4	20	0.69
BOPO2	7.5	80	6.01	BOTI10	4.6	20	0.91
BOPO3	0.7	80	0.58	BOTI11	4.6	85	3.91
BOPO4	0.3	75	0.26	BOTI2	4.1	40	1.65
BOPO5	4.8	75	3.59	BOTI3	9.7	40	3.87
BOPO6	17.0	45	7.65	BOTI4	4.2	70	2.92
BORB1	21.7	80	17.38	BOTI5	0.8	30	0.24
BORB10	1.5	70	1.03	BOTI6	1.3	75	0.94
BORB11	5.0	30	1.51	BOTI7	2.6	50	1.29
BORB12	11.9	80	9.49	BOTI8	5.6	85	4.77
BORB2	0.5	70	0.33	BOTI9	1.2	15	0.19
BORB3	7.5	70	5.22	BOTP1	8.8	65	5.72
BORB4	10.9	70	7.61	BOTP2	4.1	65	2.67
BORB5	0.4	75	0.28	BOWN1	18.6	60	11.14
BORB6	5.3	75	3.98	BOWN10	5.4	20	1.07
BORB7	4.7	30	1.42	BOWN2	13.2	65	8.55
BORB8	3.8	20	0.76	BOWN3	3.9	65	2.56
BORB9	7.1	80	5.66	BOWN4	4.6	65	3.01
BOSC1	15.6	80	12.50	BOWN5	0.9	40	0.37
BOSH1	0.2	10	0.02	BOWN6	1.7	40	0.69
BOSH2	0.4	20	0.08	BOWN7	0.3	40	0.12
BOSH3	0.7	30	0.22	BOWN8	1.5	35	0.54
BOSH4	0.5	50	0.26	BOWN9	0.3	35	0.12
BOSH5	0.1	50	0.07				

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
Dartmouth beds				DANO9	0.2	70	0.13
DABJ1	1.6	80	1.30	DAOA1	4.6	70	3.24
DABJ2	2.3	80	1.84	DAOA2	5.3	80	4.25
DABJ3	10.4	90	9.33	DAOA3	5.6	30	1.68
DADP1	1.4	75	1.05	DAPP1	1.7	80	1.35
DADP2	1.3	75	1.01	DAPP2	1.6	80	1.30
DADP3	0.3	75	0.20	DAPP3	0.9	85	0.76
DADP4	0.6	75	0.42	DARH1	15.1	50	7.57
DADP5	2.1	75	1.61	DARH10	0.8	65	0.52
DALR1	2.6	50	1.29	DARH11	0.2	65	0.15
DALR2	4.0	60	2.39	DARH12	1.5	65	0.98
DAMP1	2.5	95	2.39	DARH2	0.2	65	0.14
DAMP2	8.5	80	6.83	DARH3	1.9	65	1.24
DAMP3	0.2	80	0.17	DARH4	0.3	65	0.20
DAMP4	0.4	75	0.30	DARH5	0.1	65	0.03
DAMP5	5.0	55	2.76	DARH6	0.1	65	0.03
DANO1	9.4	70	6.56	DARH7	0.1	65	0.06
DANO2	0.1	75	0.04	DARH8	1.7	65	1.13
DANO3	0.1	70	0.05	DARH9	0.4	65	0.25
DANO4	0.7	70	0.51	DASP1	5.9	85	5.02
DANO5	0.5	70	0.37	DASPP1	0.8	75	0.55
DANO6	1.1	80	0.91	DASPP2	0.2	80	0.15
DANO7	0.4	70	0.30	DASPP3	0.5	75	0.37
DANO8	0.7	70	0.50	DASPP4	0.4	75	0.27

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
				FAGS9	0.8	70	0.58
Falmouth Beds				FAGU1	1.2	75	0.93
FAGH1	4.8	100	4.85	FAGU2	5.7	75	4.30
FAGH10	5.8	50	2.91	FAGU3	11.2	70	7.87
FAGH11	0.5	50	0.26	FAGU4	4.4	95	4.18
FAGH12	0.9	50	0.45	FAGU5	3.0	60	1.79
FAGH13	0.9	60	0.56	FAGU6	1.5	60	0.93
FAGH2	0.5	70	0.33	FAGU7	0.2	69	0.14
FAGH3	3.4	70	2.41	FAHB1	0.1	60	0.04
FAGH4	0.4	55	0.23	FAHP1	15.8	80	12.66
FAGH5	3.2	75	2.37	FAHP2	9.1	25	2.27
FAGH6	1.6	90	1.43	FALH1	2.8	60	1.69
FAGH7	0.8	75	0.57	FALH2	1.9	60	1.17
FAGH8	3.6	50	1.78	FALH3	1.9	75	1.40
FAGH9	0.9	70	0.63	FALH4	0.9	50	0.44
FAGS1	30.0	75	22.48	FALH5	5.0	50	2.52
FAGS10	0.2	70	0.11	FALH6	0.6	35	0.22
FAGS2	0.7	60	0.43	FALS1	1.2	75	0.89
FAGS3	1.1	60	0.65	FALS2D	4.8	50	2.40
FAGS4	0.2	70	0.17	FALS2S	26.4	95	25.12
FAGS5	1.0	70	0.73	FALS3	0.3	69	0.21
FAGS6	0.1	70	0.05	FAMH1	6.7	50	3.34
FAGS7	0.3	70	0.24	FAMH10	5.8	80	4.61
FAGS8	0.1	70	0.05	FAMH11	5.4	70	3.79

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
FAMH12	1.2	65	0.81	FANP3S	3.2	95	3.02
FAMH13	4.7	65	3.04	FANP4	1.4	85	1.23
FAMH14	0.3	75	0.23	FANP5	2.8	85	2.36
FAMH15	2.1	70	1.46	FANP6	19.1	85	16.21
FAMH16	0.9	70	0.63	FAOQ1	9.3	70	6.52
FAMH17	3.6	50	1.80	FAOQ2	7.2	50	3.61
FAMH18	0.1	80	0.10	FAOQ3	3.4	65	2.18
FAMH19	5.3	80	4.23	FAOQ4	7.3	75	5.46
FAMH2	3.6	70	2.53	FAOWF1	1.0	75	0.74
FAMH20	32.0	75	23.98	FAOWF10	0.8	60	0.50
FAMH24	0.2	20	0.03	FAOWF11	0.2	50	0.12
FAMH25	1.4	40	0.54	FAOWF12	0.2	50	0.08
FAMH26	25.8	80	20.65	FAOWF13	0.1	50	0.05
FAMH3	0.5	70	0.33	FAOWF2	3.9	60	2.36
FAMH4	0.3	60	0.19	FAOWF3	18.4	75	13.78
FAMH5	7.9	60	4.77	FAOWF4	1.4	90	1.26
FAMH6	4.7	20	0.94	FAOWF5	8.6	30	2.57
FAMH7	2.4	40	0.95	FAOWF6	0.3	50	0.13
FAMH8	4.0	60	2.40	FAOWF7	4.1	90	3.67
FAMH9	2.0	15	0.29	FAOWF8	9.3	50	4.66
FANP1	3.3	75	2.50	FAOWF9	1.1	75	0.80
FANP2D	2.4	80	1.88	FAPP1	13.4	70	9.39
FANP2S	1.0	50	0.51	FAPP2	12.8	70	8.96
FANP3D	1.0	60	0.60	FAPP3	13.0	70	9.08

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
FAPP4	6.5	85	5.53	FAWH7	3.3	85	2.82
FAPP7	5.1	70	3.58	FAWH8	0.3	30	0.09
FAPP8	1.0	80	0.77				
FAQH1	3.0	75	2.24	Fairhaven Beds			
FAQH2	0.5	70	0.35	FRNB1	128.7	75	96.56
FAQH3	2.8	75	2.11	FRNB2	49.4	85	41.96
FAQH4	2.4	50	1.20	FRNB3	16.4	65	10.64
FASD1	21.8	80	17.45	FRNB4	0.4	65	0.23
FASD2	26.8	85	22.75	FRNB5	2.4	45	1.07
FAWEP1	0.2	50	0.09	FRSN1	28.1	75	21.09
FAWFH1	1.6	90	1.41	FRSN2	0.4	75	0.27
FAWFH2	6.3	100	6.31	FRSN3	62.7	80	50.13
FAWFH3	14.0	75	10.51	FRSN4	6.2	40	2.47
FAWFH4	5.4	60	3.23	FRSN6	4.6	35	1.62
FAWFH5	4.4	60	2.65	FRWI1	0.8	35	0.27
FAWFH6	5.3	50	2.67	FRWI2	76.5	85	65.02
FAWFH7	1.9	50	0.97	FRWI3	1.3	70	0.91
FAWFH8	1.3	50	0.64	FRWI4	8.5	85	7.21
FAWH1	7.2	60	4.32	FRWI5	33.6	75	25.20
FAWH2	0.2	50	0.11	FRWI6	5.1	60	3.09
FAWH3	0.2	50	0.11	FRWI7	3.2	65	2.08
FAWH4	0.1	50	0.05	FRWI8	17.4	75	13.05
FAWH5	0.7	35	0.24	FRWI9	4.7	70	3.31
FAWH6	6.2	50	3.11				

Bed name	habitat area	% cover	bed area	Bed name	habitat area	% cover	bed area
Marion Beds				MRSH13	3.3	40	1.31
MRCP1	23.7	65	15.40	MRSH14	5.0	40	2.00
MRCP2	12.1	75	9.08	MRSH15	1.4	35	0.48
MRCP3	8.7	80	6.96	MRSH2	5.1	35	1.79
MRCP4	6.5	55	3.58	MRSH3	14.5	85	12.28
MRCP5	1.1	10	0.11	MRSH4	4.5	20	0.91
MRCP6	7.0	45	3.16	MRSH5	5.3	60	3.16
MRCP7	3.4	80	2.75	MRSH6	10.0	40	4.01
MRCP8	12.4	80	9.94	MRSH7	2.8	30	0.83
MRGH1	5.2	80	4.12	MRSH8	1.9	30	0.58
MRGH2	5.8	80	4.62	MRSH9	1.2	40	0.49
MRGH3	3.2	80	2.56	MRSN1	6.7	60	4.03
MRPI1	12.1	60	7.27	MRSN2	3.4	60	2.05
MRPI2	4.3	40	1.72	MRSN3	17.6	40	7.05
MRPI3	3.1	45	1.38	MRSN4	5.2	40	2.09
MRPI4	1.8	15	0.27	MRSN5	14.1	70	9.86
MRPI5	1.0	15	0.14	MRSN6	3.6	15	0.54
MRPI6	5.6	30	1.67	MRSN7	16.5	65	10.71
MRPI7	2.5	20	0.51	MRSN8	8.4	60	5.06
MRPI8	0.5	50	0.23	MRSN9	9.9	75	7.40
MRSH1	14.8	55	8.13	MRWC1	2.9	35	1.00
MRSH10	2.7	45	1.21	MRWC2	35.0	50	17.51
MRSH11	0.8	40	0.33	MRWC3	1.1	10	0.11
MRSH12	1.6	40	0.65	MRWC4	0.4	70	0.31

Bed name	habitat area	% cover	bed area
MRWC5	0.4	40	0.18
MRWW2	1.3	40	0.54
MRWW4	5.8	80	4.68
MRWW7	2.7	60	1.64
MRWW9	1.0	50	0.48
Mattapoisett Beds			
MTAC1	2.0	60	1.18
MTAC2	10.4	70	7.27
MTBI1	0.9	95	0.88
MTBI10	0.1	45	0.03
MTBI11	4.6	90	4.16
MTBI12	5.2	90	4.65
MTBI13	1.8	80	1.41
MTBI14	1.3	80	1.02
MTBI15	0.2	80	0.13
MTBI16	6.2	80	4.98
MTBI17	56.7	95	53.88
MTBI2	2.3	80	1.88
MTBI4	5.2	90	4.64
MTBI5	4.3	50	2.14
MTBI6	5.4	80	4.33
MTBI7	4.6	45	2.08
MTBI8	4.1	90	3.65

Bed name	habitat area	% cover	bed area
MTBI9	0.6	45	0.26
MTHC1	9.1	80	7.31
MTHC2	9.1	60	5.47
MTHC3	13.5	75	10.10
MTMH1	26.7	60	16.01
MTMH2	0.5	10	0.05
MTMH3	0.4	85	0.37
MTMH4	14.1	60	8.44
MTMH5	20.4	60	12.24
MTMH6	25.3	70	17.71
MTNB6	32.4	80	25.92
MTRI1	33.5	60	20.10
MTRI2	7.1	30	2.12
MTSP1	5.7	60	3.40
MTSP10	25.6	75	19.17
MTSP11	3.1	60	1.88
MTSP12	1.3	30	0.39
MTSP2	1.1	65	0.71
MTSP3	24.9	65	16.19
MTSP4	22.2	50	11.11
MTSP5	47.1	80	37.67
MTSP6	6.5	30	1.94
MTSP8	0.3	70	0.22
MTSP9	0.2	70	0.15

Bed name	habitat area	% cover	bed area
New Bedford Beds			
NBFR1	0.6	25	0.16
Wareham Beds			
WABB1	1.5	70	1.02
WABB2	5.9	85	5.05
WABB3	1.0	25	0.26
WABC1	8.1	30	2.44
WABC2	4.8	45	2.17
WABU1	3.7	69	2.58
WACN1	13.7	90	12.31
WACN2	1.7	80	1.39
WAGN1	107.0	75	80.27
WAGN10	4.0	50	1.99
WAGN11	0.2	75	0.15
WAGN12	1.5	85	1.27
WAGN13	0.7	80	0.53
WAGN14	44.9	75	33.68
WAGN15	7.4	85	6.33
WAGN16	138.0	55	75.89
WAGN17	64.4	40	25.78
WAGN18	38.9	40	15.57
WAGN19	1.1	70	0.80

Bed name	habitat area	% cover	bed area
WAGN2	0.7	80	0.59
WAGN3	91.1	40	36.43
WAGN4	33.2	30	9.97
WAGN5	1.2	40	0.46
WAGN6	1.1	50	0.57
WAGN7	0.3	85	0.25
WAGN8	1.3	75	0.96
WAGN9	0.5	45	0.24
WAHN1	4.5	80	3.63
WAHN2	4.9	90	4.44
WAHN3	5.2	90	4.66
WALB1	30.8	80	24.67
WAOB1	1.8	95	1.75
WAOB10	0.8	50	0.42
WAOB2	3.1	95	2.95
WAOB3	4.5	95	4.25
WAOB4	7.6	45	3.44
WAOB5	2.0	60	1.20
WAOB6	6.2	40	2.48
WAOB7	11.8	40	4.71
WAOB8	17.8	75	13.33
WAOB9	9.8	25	2.44
WAPI2	15.2	50	7.58
WAPI3	22.4	80	17.93

Bed name	habitat area	% cover	bed area
WAPI4	1.7	45	0.78
WAPI7	19.8	85	16.87
WAPI8	1.0	90	0.94
WASP1	1.8	65	1.17
WASP3	5.3	60	3.18
WASP4	16.5	80	13.20
WASP5	2.5	85	2.11
WASP6	6.0	65	3.88
WASP7	7.6	80	6.08
WASP8	6.3	70	4.40
WASP9	10.7	60	6.43
WASQ1	6.1	70	4.27
WASQ2	0.9	80	0.73
WAWC1	15.1	90	13.62
WAWC2	1.4	70	0.96
WAWC3	2.5	80	2.01
WAWC4	1.0	90	0.90
WAWC5	10.0	80	8.03
WAWR1	4.4	60	2.63
WAWR10	1.2	60	0.71
WAWR11	7.3	80	5.87
WAWR12	13.5	80	10.81
WAWR2	19.4	95	18.48
WAWR3	2.5	75	1.90

Bed name	habitat area	% cover	bed area
WAWR4	0.4	35	0.16
WAWR5	2.0	40	0.82
WAWR6	7.6	70	5.30
WAWR7	5.6	40	2.24
WAWR8	3.7	50	1.87
WAWR9	1.9	50	0.96
WAWW1	0.6	70	0.39
WAWW3	0.6	75	0.47
WAWW5	1.0	80	0.78
WAWW6	0.6	80	0.49
WAWW8	2.7	80	2.16

Westport Beds

WEWB1	19.6	35	13.53
WEWB10	3.8	60	2.60
WEWB2	1.4	45	0.94
WEWB3	64.5	35	44.51
WEWB4	13.1	60	9.01
WEWB5	8.7	95	6.01
WEWB6	15.0	60	10.35
WEWB7	15.9	60	10.95
WEWB8	5.5	90	3.83
WEWB9	31.5	75	21.71