








Figure 26. Seagrass distribution changes between 1958 to 1994 in Redfish Bay.

Redfish Bay Seagrass Changes 1958 - 1994

Seagrass(ha)

	continuous58/94	1096.23
	patchy58/94	464.98
Losses		
	c/p58 to b94	1016.98
	c58 to p94	1226.89
Gains		
	b58 to c/p94	610.57
	p58 to c94	249.59
	wrack94	138.20

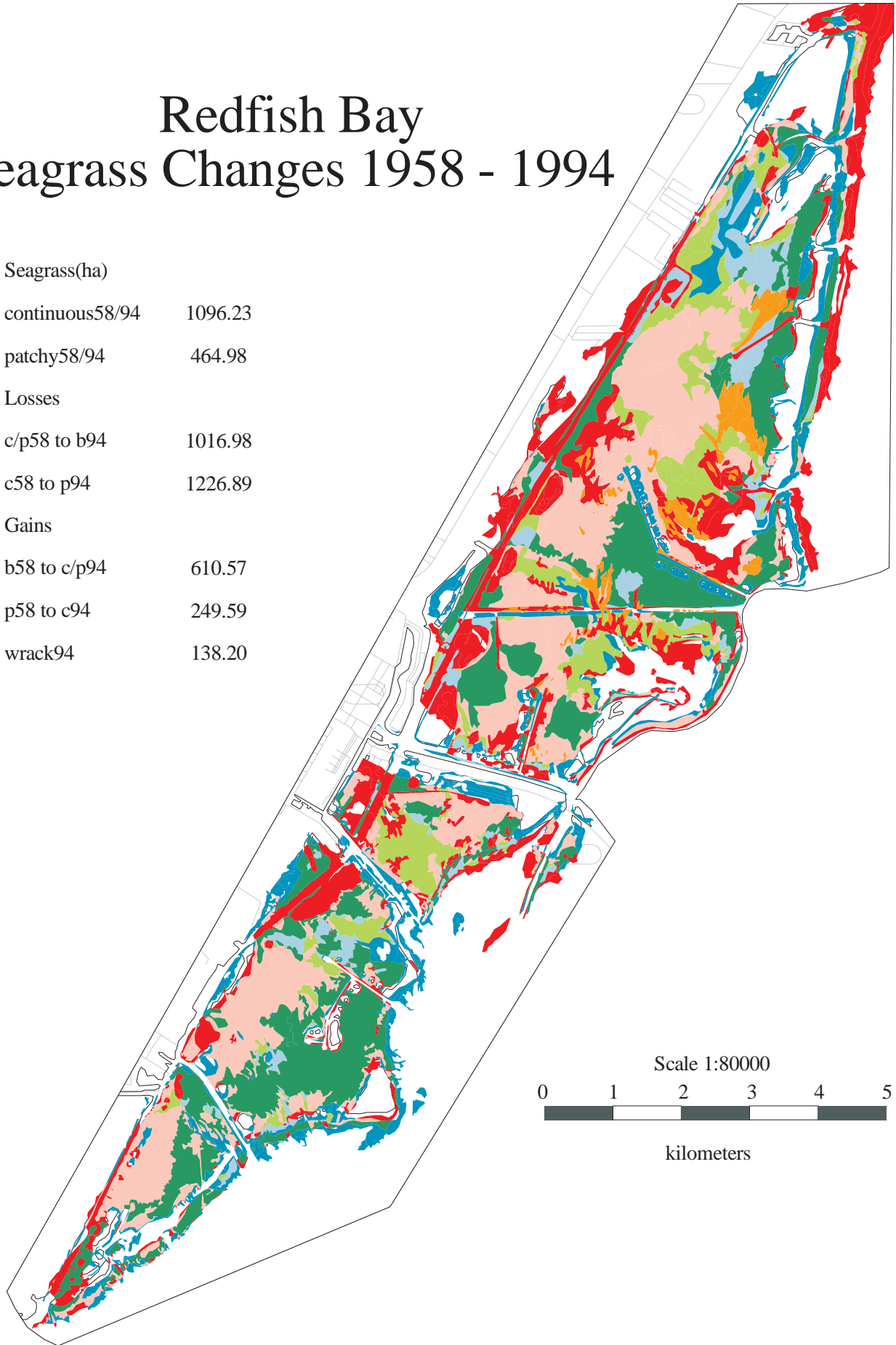








Figure 27. Seagrass distribution changes between 1958 to 1975 in Redfish Bay.

Redfish Bay Seagrass Changes 1958 - 1975

Seagrass(ha)

	continuous58/75	1947.07
	patchy58/75	264.77
Losses		
	c/p58 to b75	790.00
	c58 to p75	580.77
Gains		
	b58 to c/p75	595.02
	p58 to c75	601.77

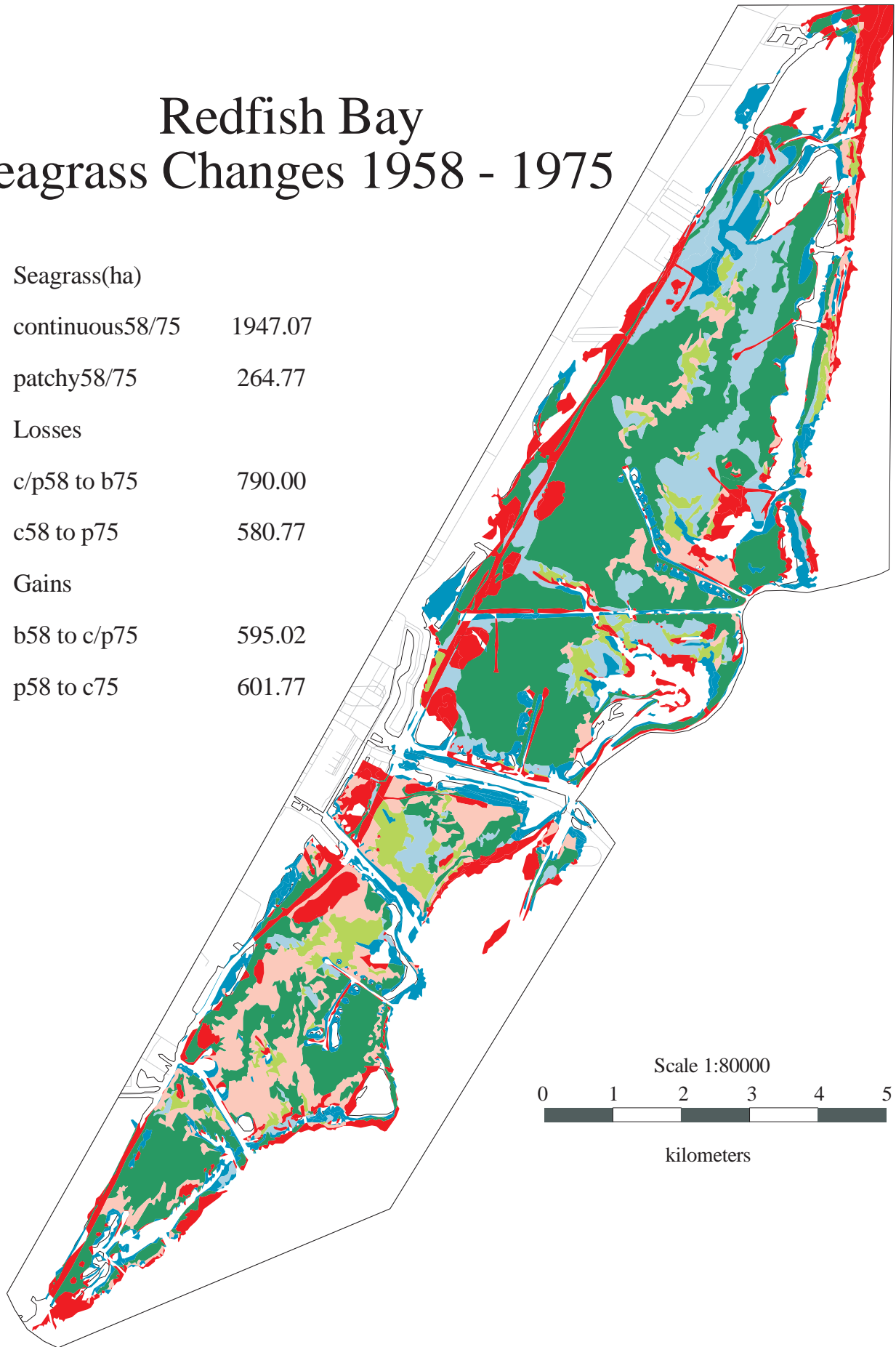







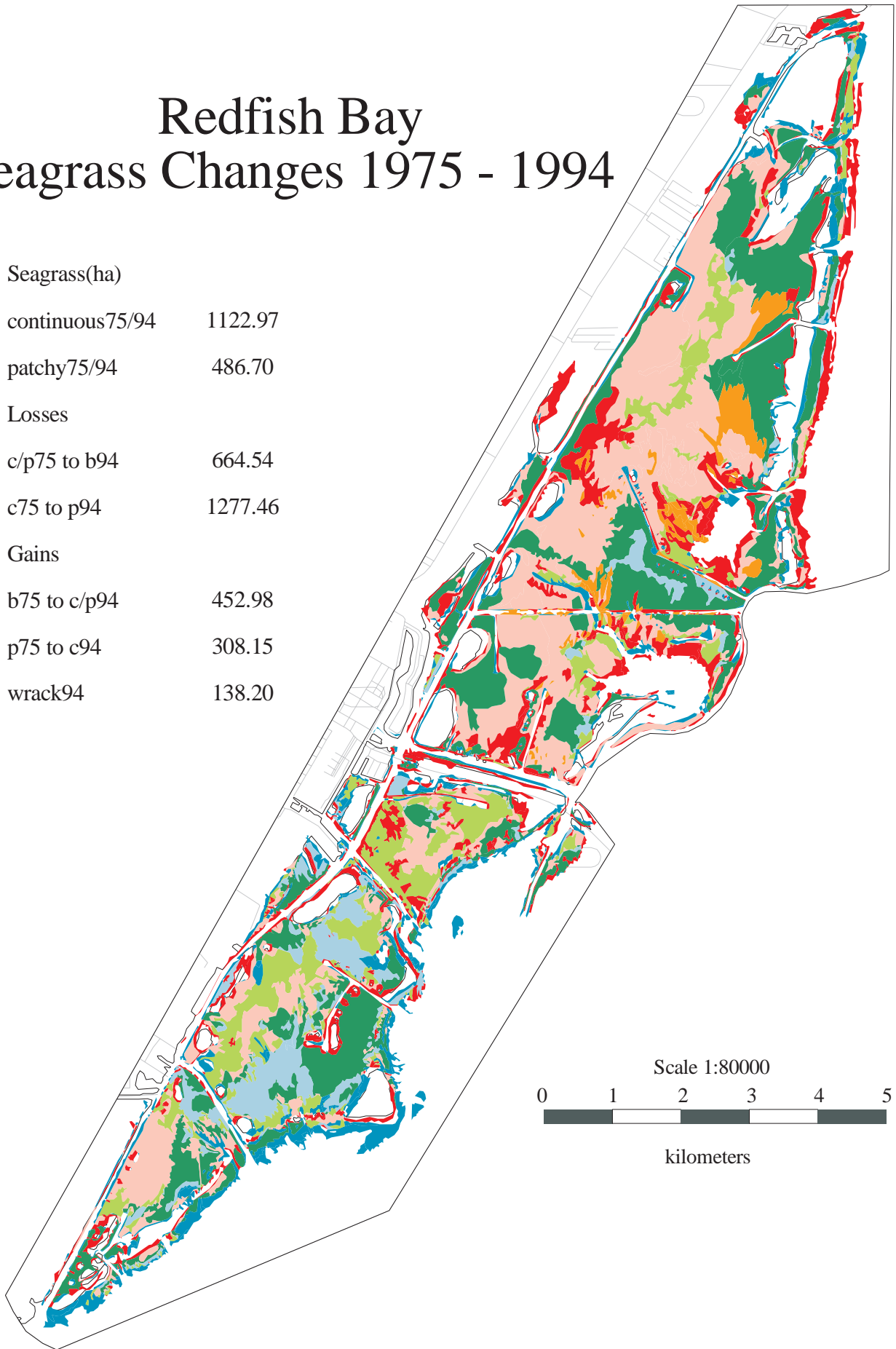


Figure 28. Seagrass distribution changes between 1975 to 1994 in Redfish Bay.

Redfish Bay Seagrass Changes 1975 - 1994

Seagrass(ha)

	continuous75/94	1122.97
	patchy75/94	486.70
Losses		
	c/p75 to b94	664.54
	c75 to p94	1277.46
Gains		
	b75 to c/p94	452.98
	p75 to c94	308.15
	wrack94	138.20



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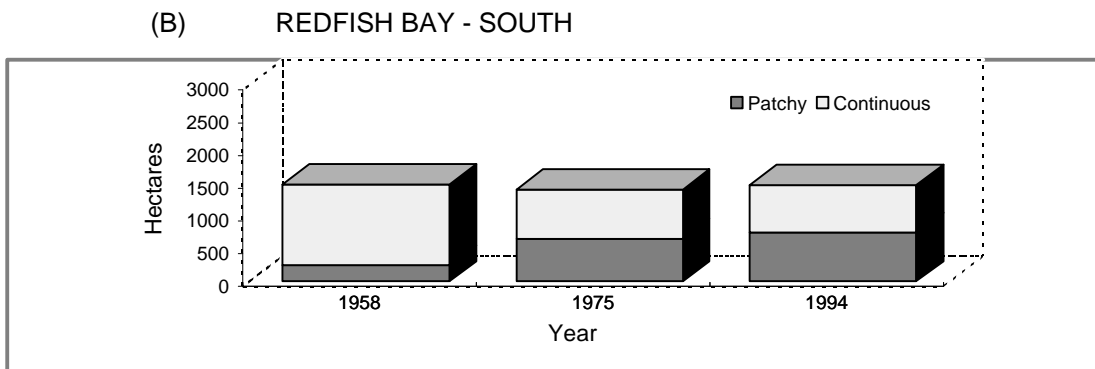
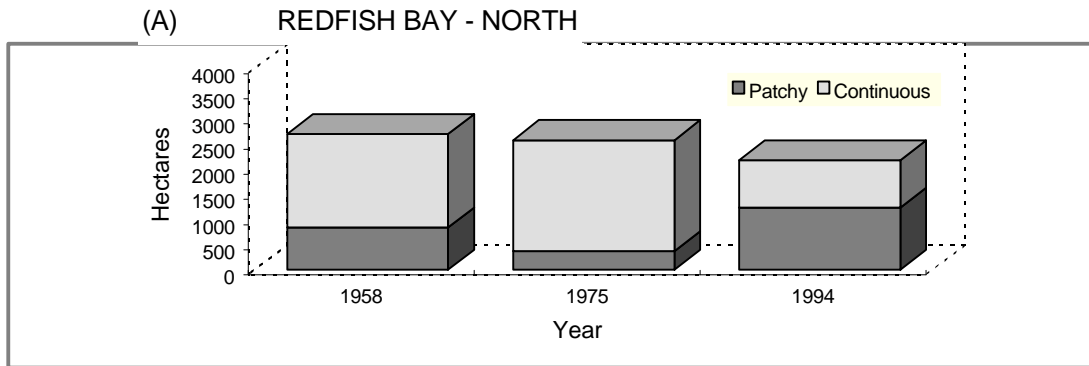







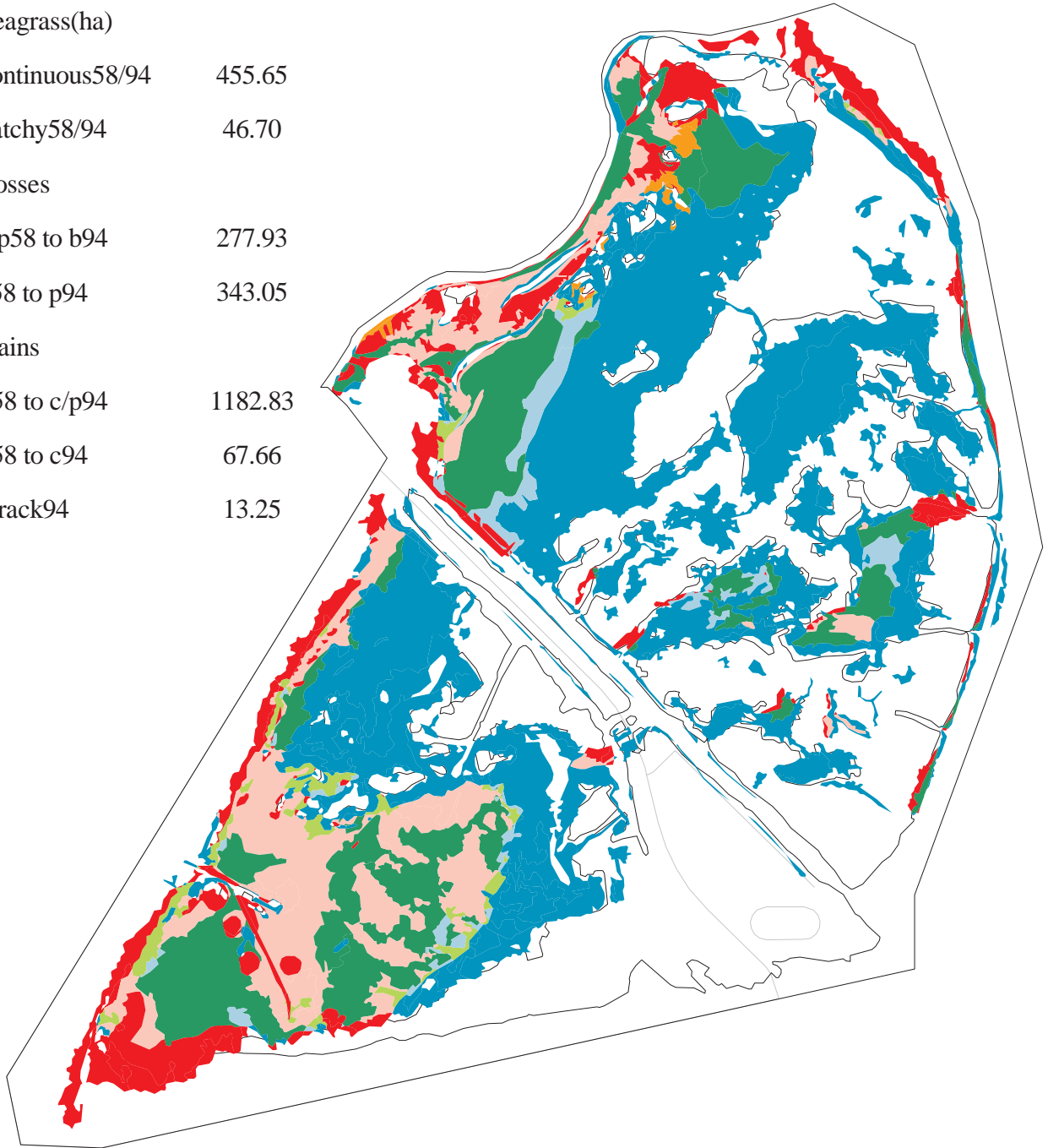


Figure 29. Changes in seagrass distribution for (A) North and (B) South Redfish Bay areas between 1958, 1975, and 1994 periods. Acreage of patchy and continuous seagrass beds is shown.

Figure 30. Seagrass distribution changes between 1958 to 1994 in Harbor Island area.

Harbor Island Seagrass Changes 1958 - 1994

Seagrass(ha)	
	continuous58/94 455.65
	patchy58/94 46.70
Losses	
	c/p58 to b94 277.93
	c58 to p94 343.05
Gains	
	b58 to c/p94 1182.83
	p58 to c94 67.66
	wrack94 13.25









Scale 1:55000

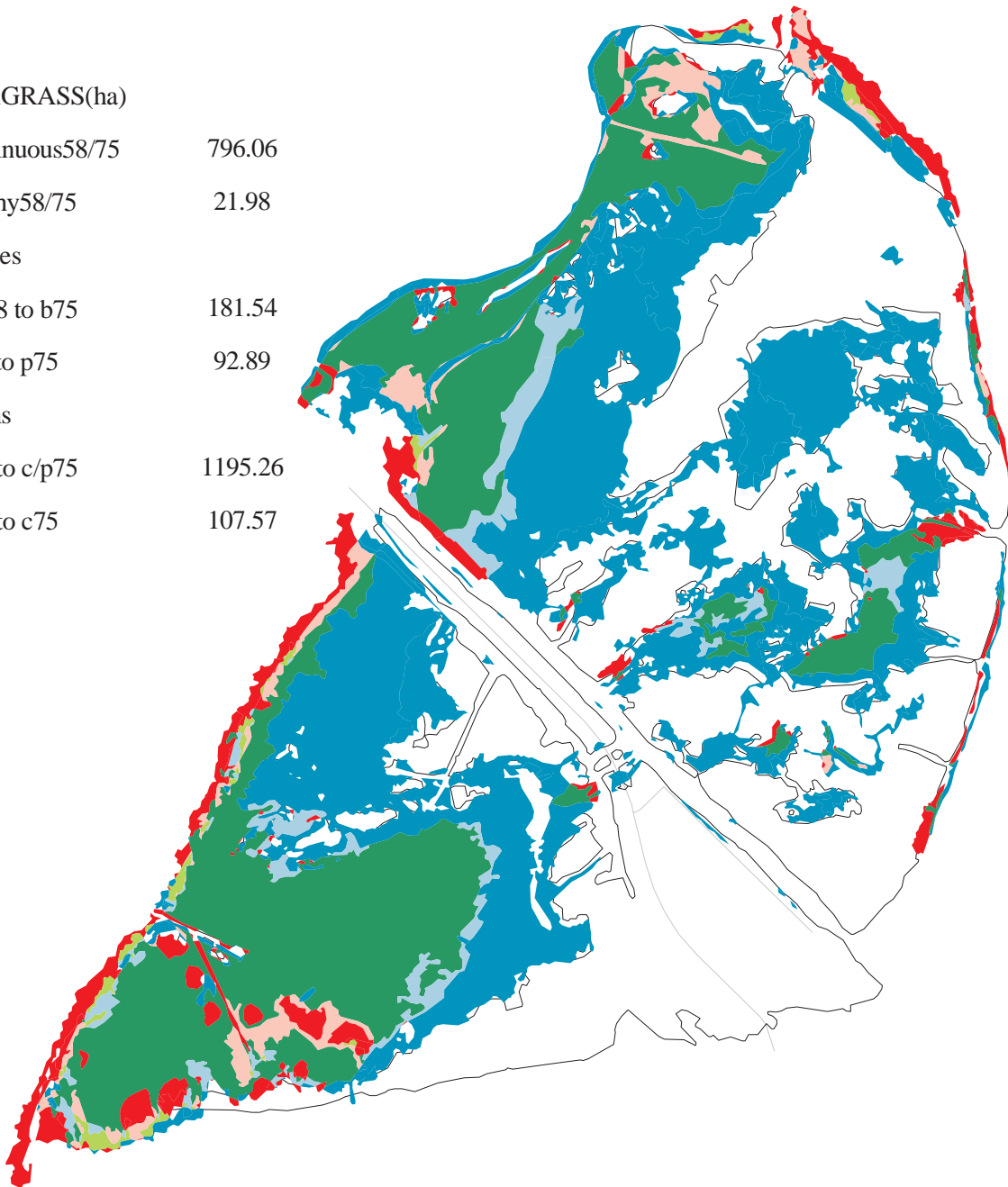


kilometers

Figure 31. Seagrass distribution changes between 1958 to 1975 in Harbor Island area.

Harbor Island Seagrass Changes 1958 - 1975

SEAGRASS(ha)	
	continuous58/75 796.06
	patchy58/75 21.98
Losses	
	c/p58 to b75 181.54
	c58 to p75 92.89
Gains	
	b58 to c/p75 1195.26
	p58 to c75 107.57










Scale 1:55000

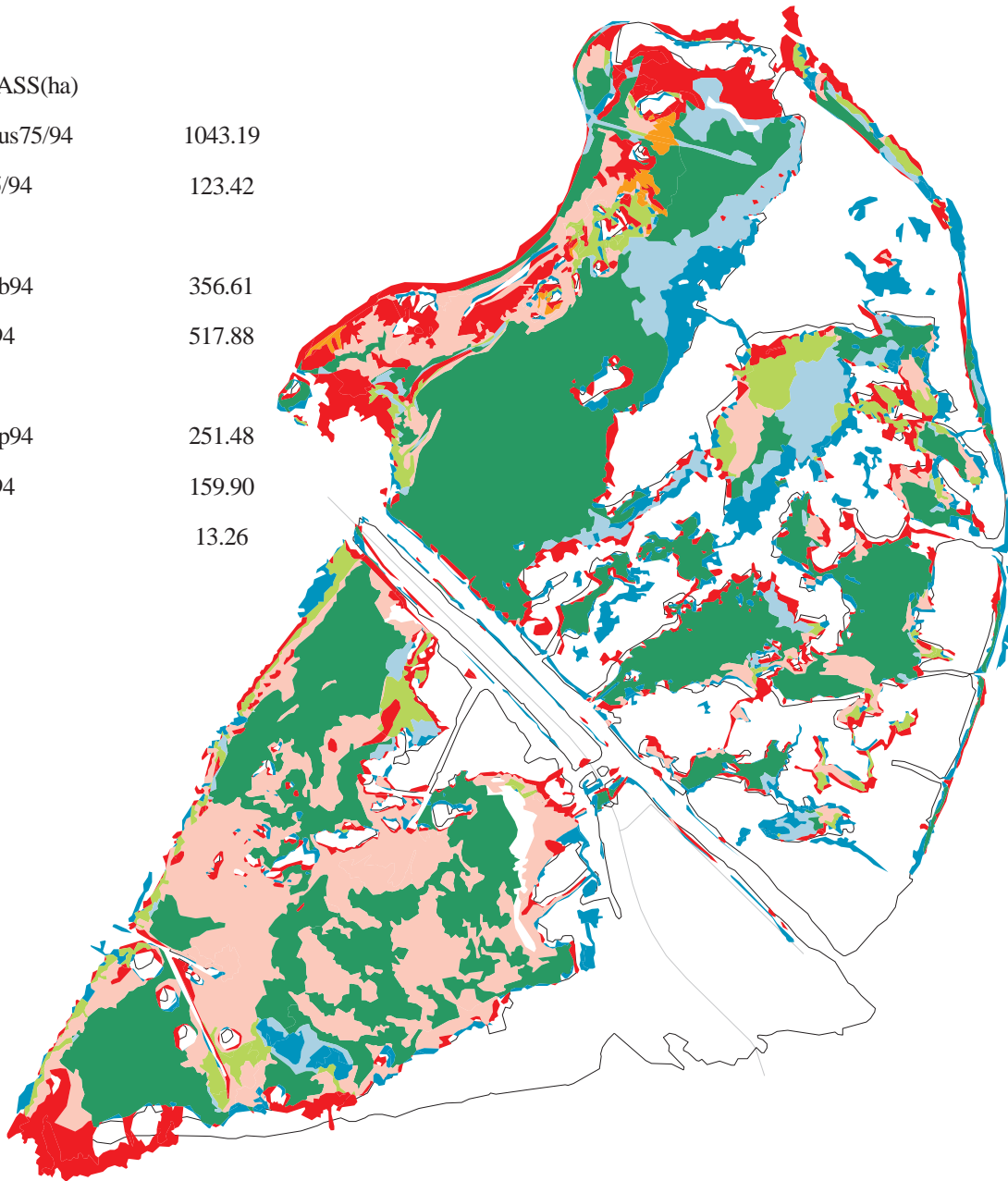


kilometers

Figure 32. Seagrass distribution changes between 1975 to 1994 in Harbor Island area.

Harbor Island Seagrass Changes 1975 - 1994

SEAGRASS(ha)	
	continuous75/94 1043.19
	patchy75/94 123.42
Losses	
	c/p75 to b94 356.61
	c75 to p94 517.88
Gains	
	b75 to c/p94 251.48
	p75 to c94 159.90
	wrack94 13.26



Scale 1:55000



kilometers

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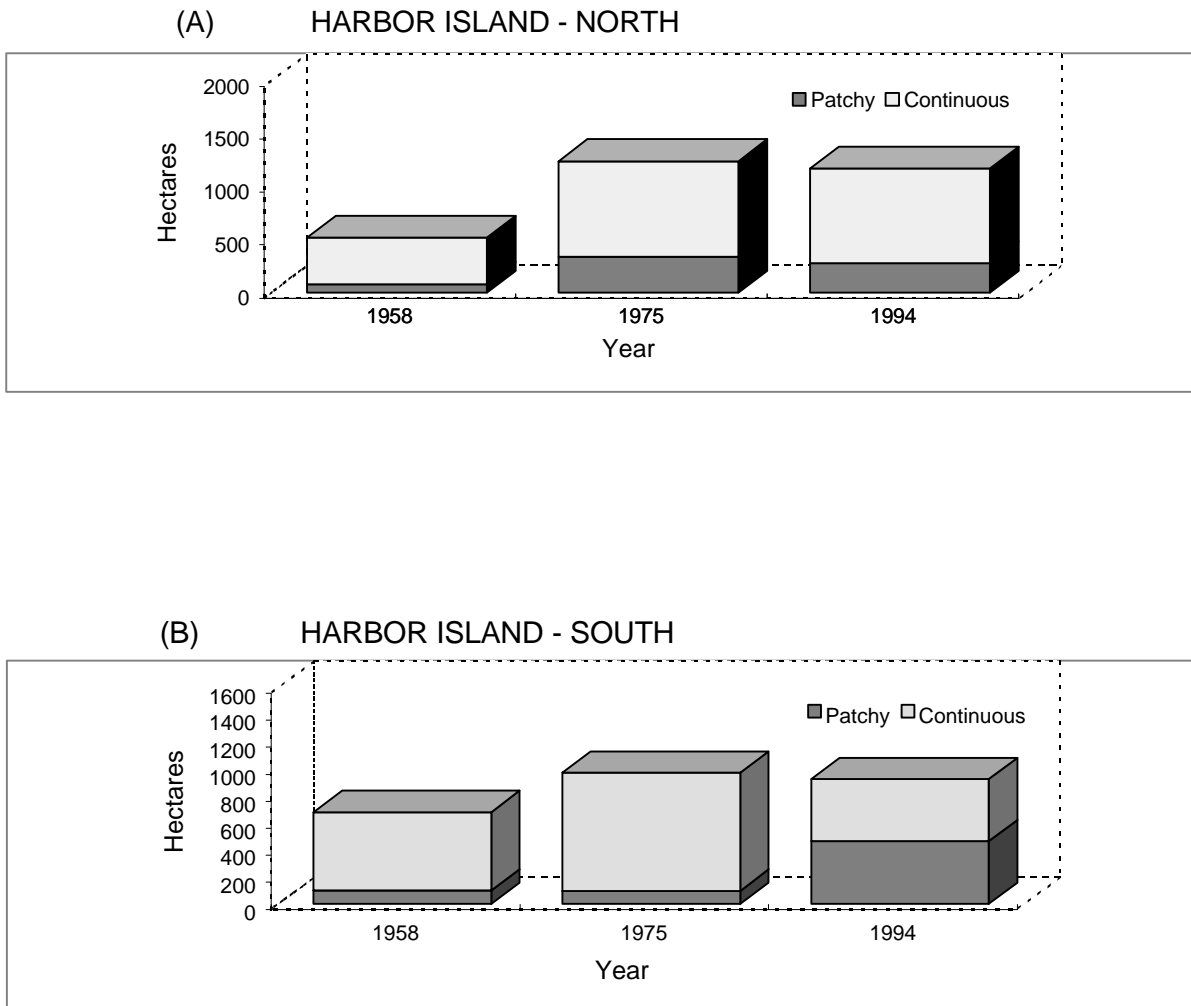


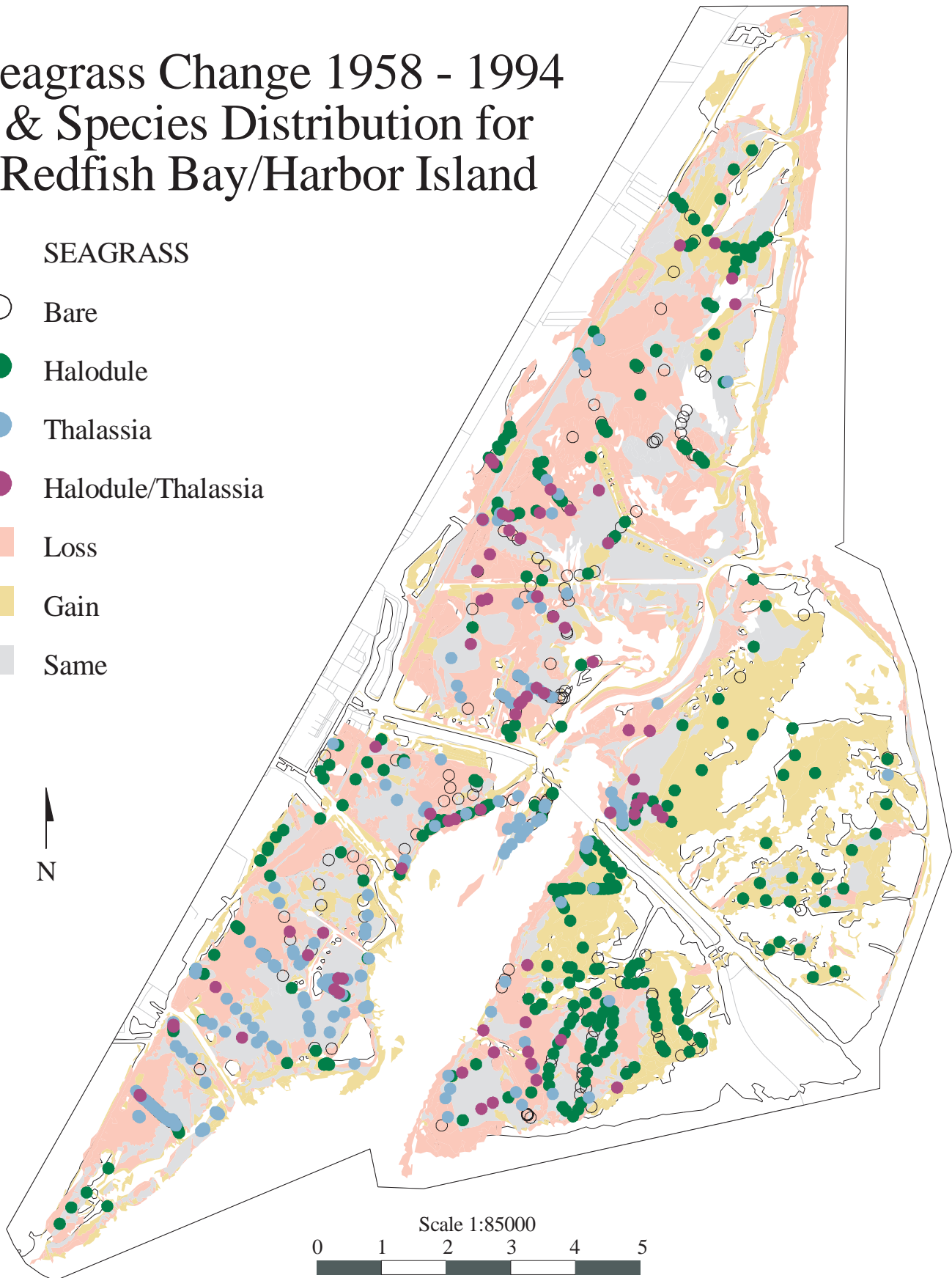
Figure 33. Changes in seagrass distribution for (A) North and (B) South Harbor Island areas between 1958, 1975, and 1994 periods. Acreage of patchy and continuous seagrass beds is shown.

Figure 34. Relationship between seagrass species distributions and seagrass bed changes over 1958 – 1994 period in Redfish Bay/Harbor Island complex.

Seagrass Change 1958 - 1994 & Species Distribution for Redfish Bay/Harbor Island

SEAGRASS

- Bare
- Halodule
- Thalassia
- Halodule/Thalassia
- Loss
- Gain
- Same



Scale 1:85000






kilometers

Figure 35. Seagrass distribution changes between 1974 to 1994 for Mustang Island and Upper Laguna Madre area.

Mustang Island/Upper Laguna Madre Seagrass Coverages 1974-1994

Seagrass(ha)

	1974 only	312.83
	1994 only	831.68
	1974 & 1994	2036.07
	1974 total	2348.85
	1994 total	2867.70

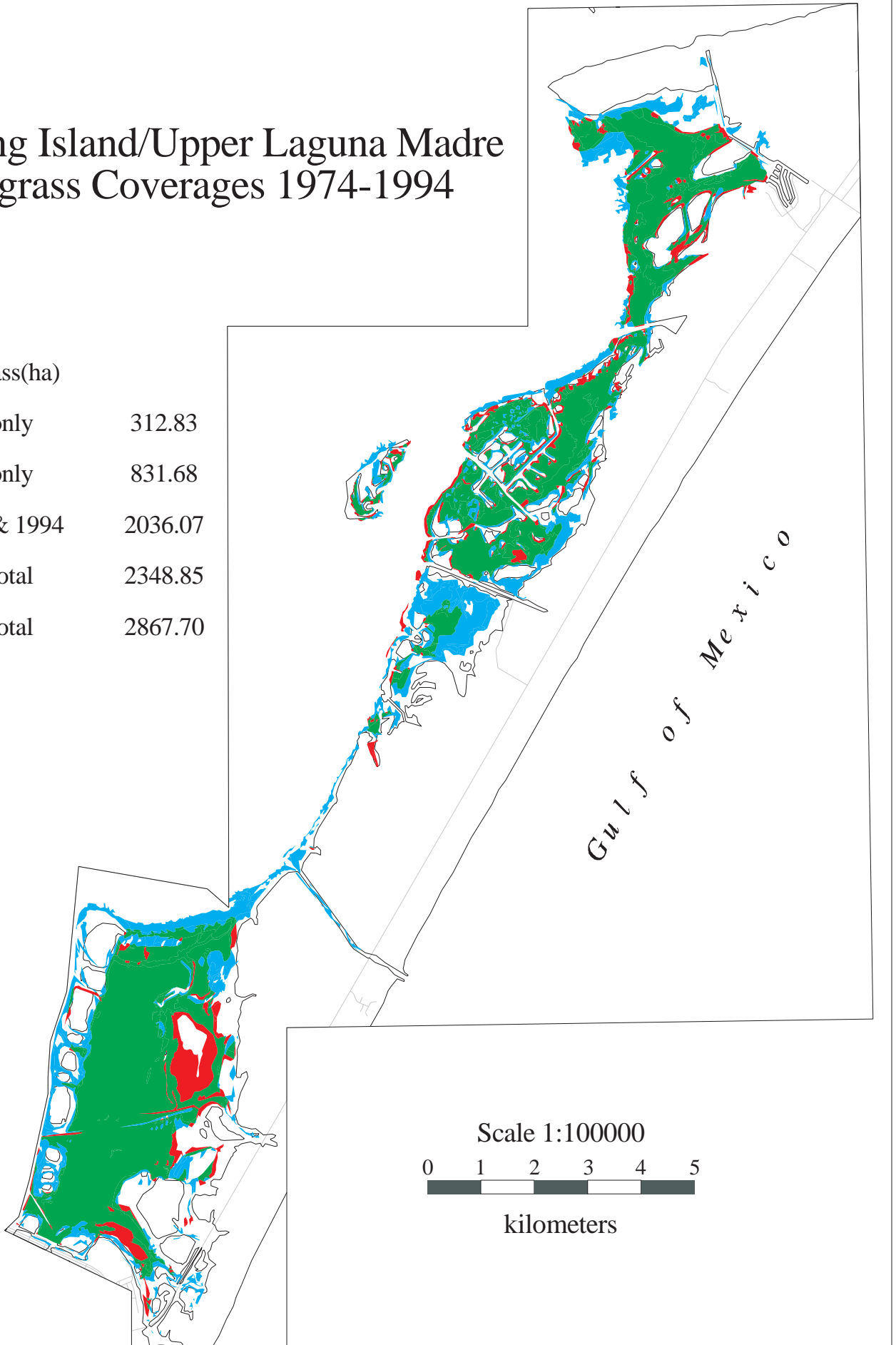
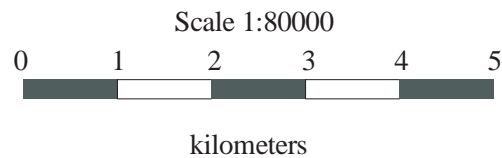
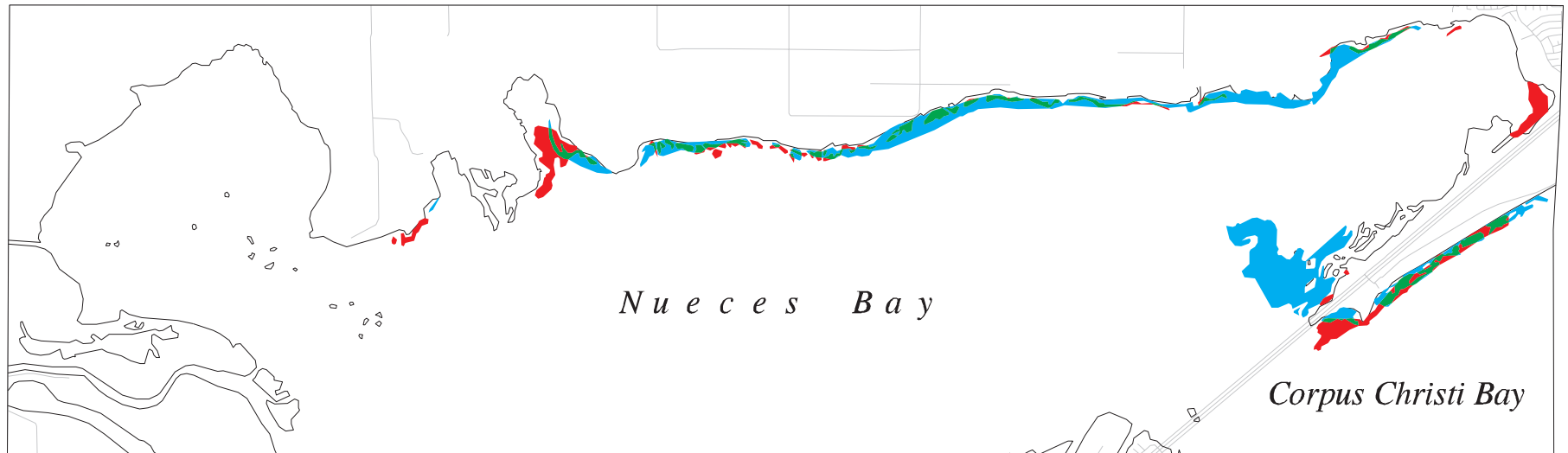


Figure 36. Seagrass distribution changes between 1961 to 1989 for Nueces Bay area.

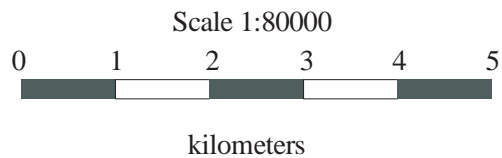
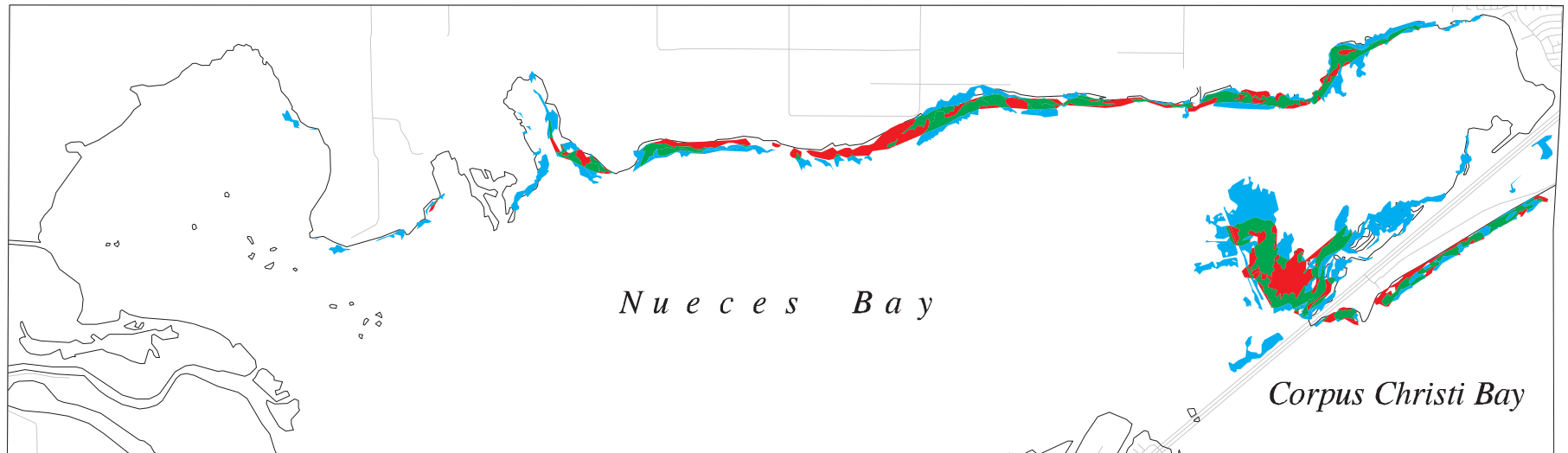
Nueces & North Corpus Christi Bays Seagrass Changes 1961 - 1989



NUECES_SEAGRASS(ha)		N.CORPUS_SEAGRASS(ha)		
■	1961 only	44.63	■ 1961 only	19.55
■	1989 only	165.40	■ 1989 only	11.77
■	1961 & 1989	34.23	■ 1961 & 1989	15.76
	1961 total	78.86	1961 total	35.31
	1989 total	199.63	1989 total	27.53

Figure 37. Seagrass distribution changes between 1989 to 1994 for Nueces Bay area.

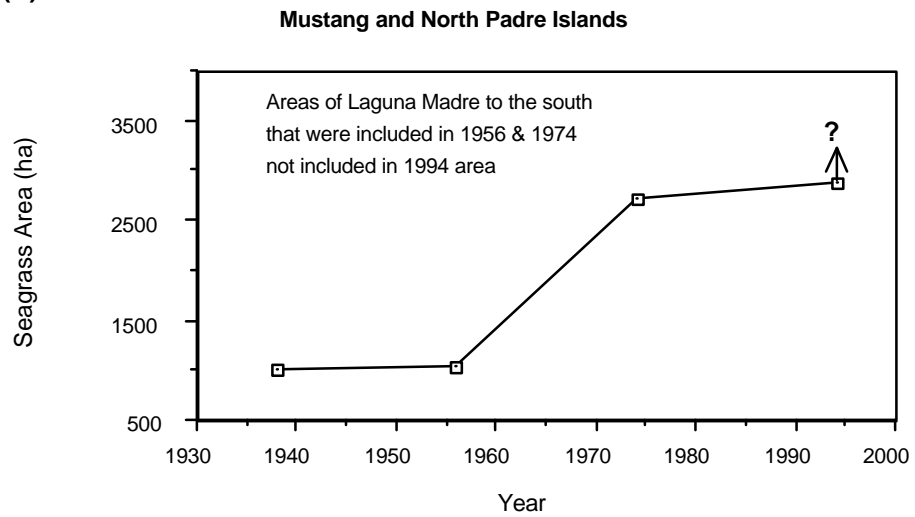
Nueces & North Corpus Christi Bays Seagrass Changes 1989 - 1994



NUECES_SEAGRASS(ha)		N.CORPUS_SEAGRASS(ha)		
■	1989 only	85.00	■ 1989 only	10.43
■	1994 only	178.97	■ 1994 only	13.07
■	1989 & 1994	114.63	■ 1989 & 1994	17.08
	1989 total	199.63	1989 total	27.51
	1994 total	293.60	1994 total	30.15

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(A)



(B)

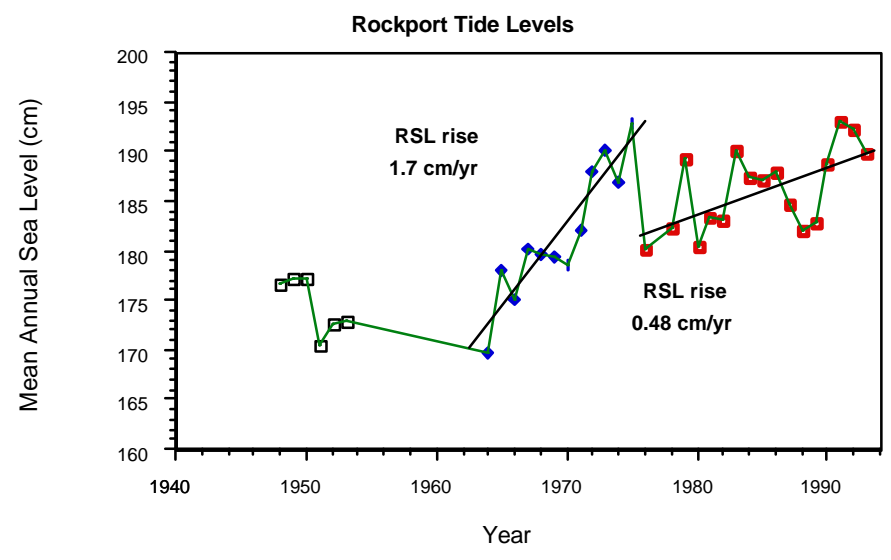


Figure 38. Comparison between (A) expansion of seagrass on Mustang Island and (B) rates of relative sea-level rise as recorded by the Rockport tide gauge. Tide gauge data from NOAA.

Figure 39. Map showing location and time of dredging of navigation channels and dredge disposal sites for Redfish Bay/Harbor Island complex.

Redfish Bay/Harbor Island Spoil Areas & Channels 1958 - 1994

Spoil

1958/1994

Channels

1958

1958/1975

1975/1994

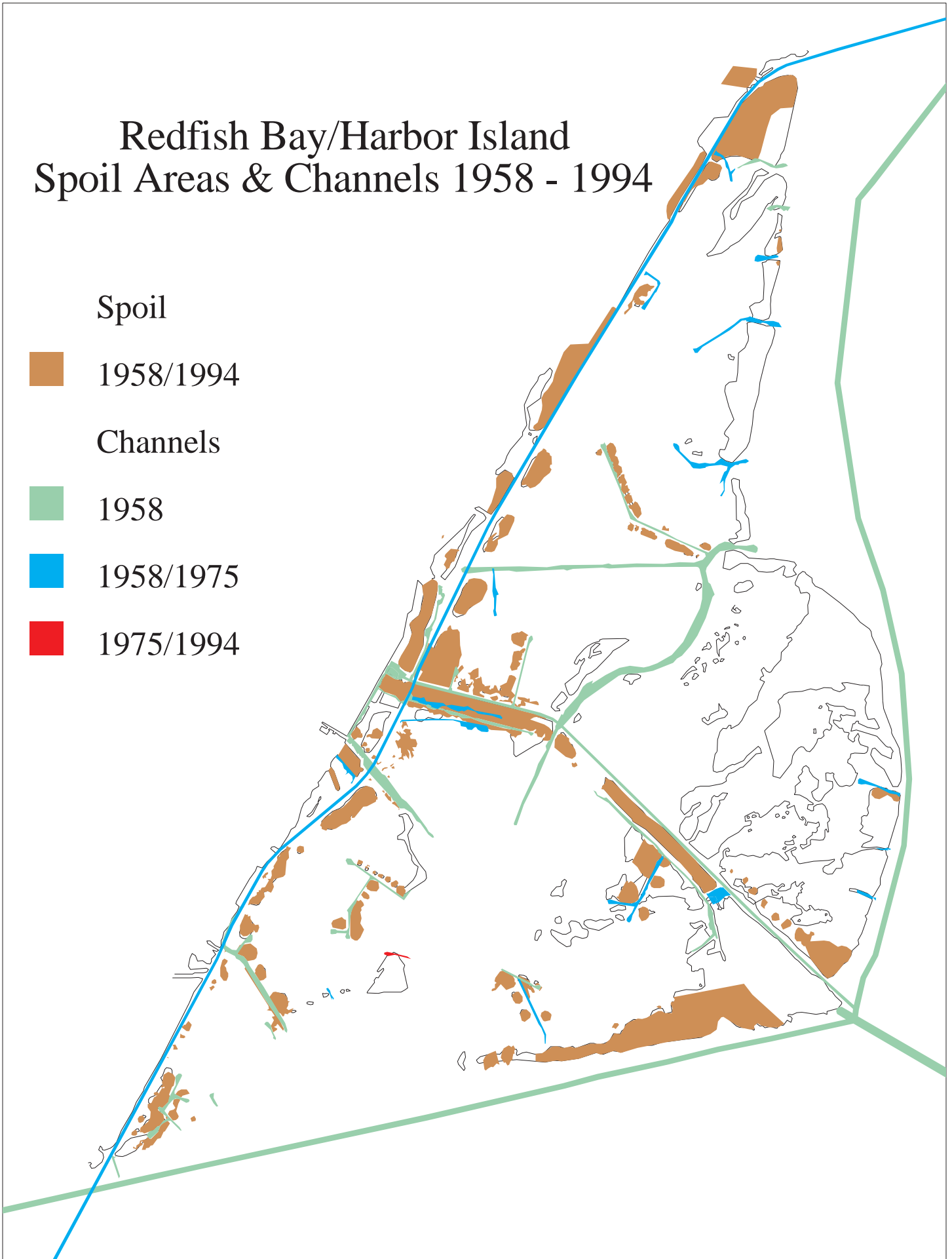


Figure 40. Seagrass distribution changes between 1958 to 1994 within dredge disposal areas and a 100 m buffer zone around navigation channels for the Redfish Bay/Harbor Island complex.

Redfish Bay/Harbor Island 1958 - 1994 Seagrass Changes within Spoil Areas & 100m Buffered Channels

SEAGRASS AREA(ha) NTCH

Losses

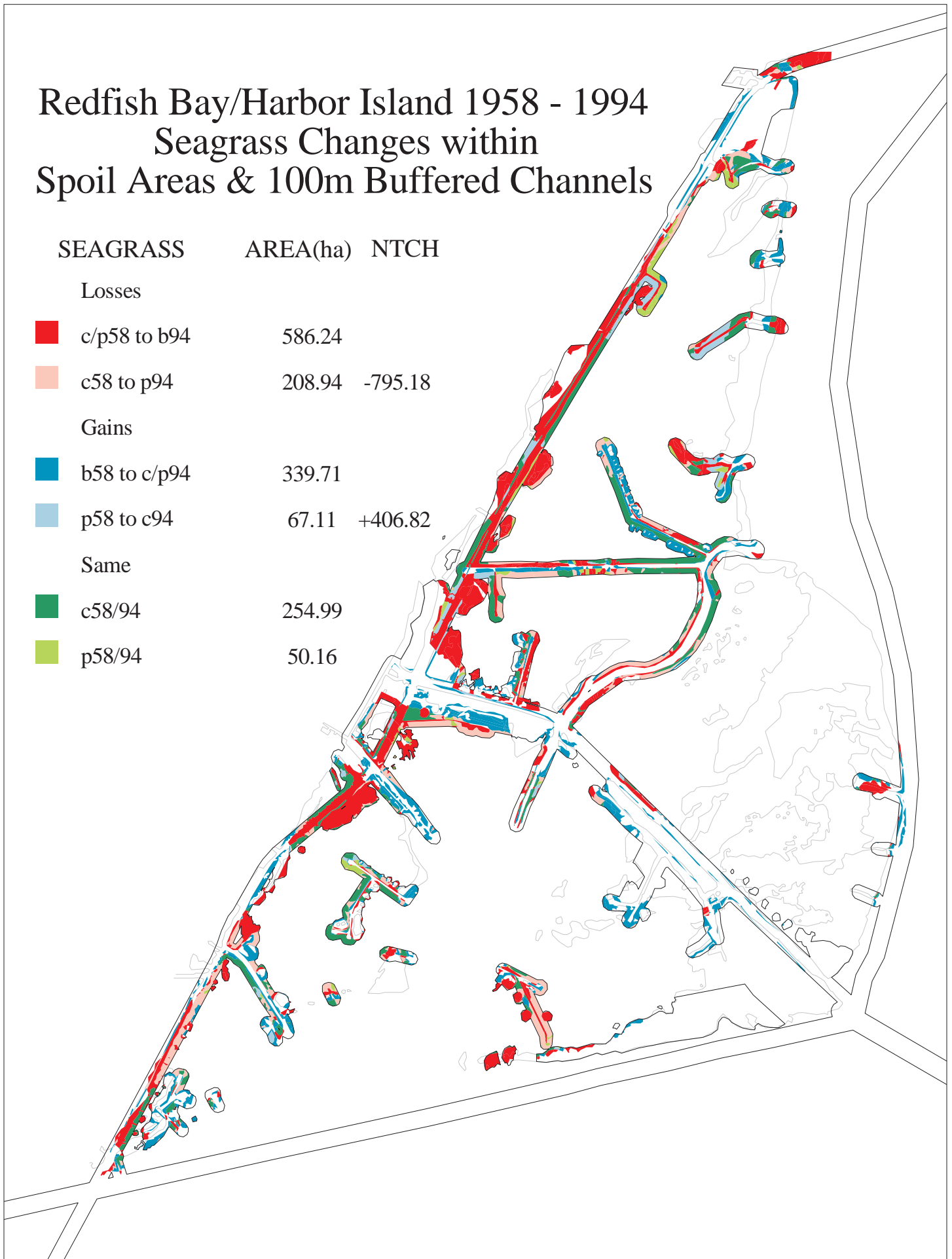
■	c/p58 to b94	586.24	
■	c58 to p94	208.94	-795.18

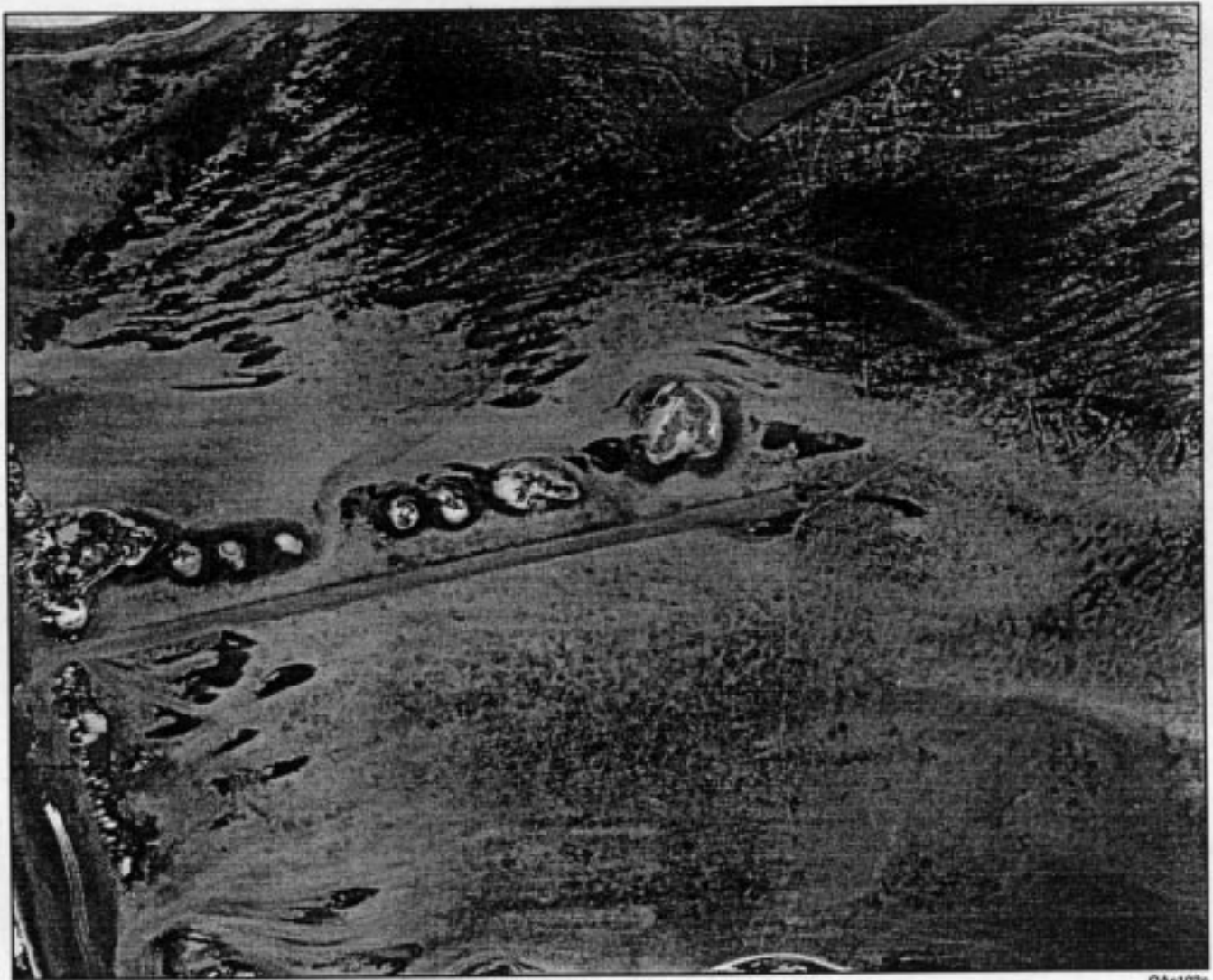
Gains

■	b58 to c/p94	339.71	
■	p58 to c94	67.11	+406.82

Same

■	c58/94	254.99	
■	p58/94	50.16	





QAc102c

Figure 41. Aerial photograph from 1994 at 1:12,000 scale showing fragmented (patchy) seagrass beds in north Redfish Bay. Light streaks through grassbeds in upper right and right center denote tracks from motorboat propeller scarring.



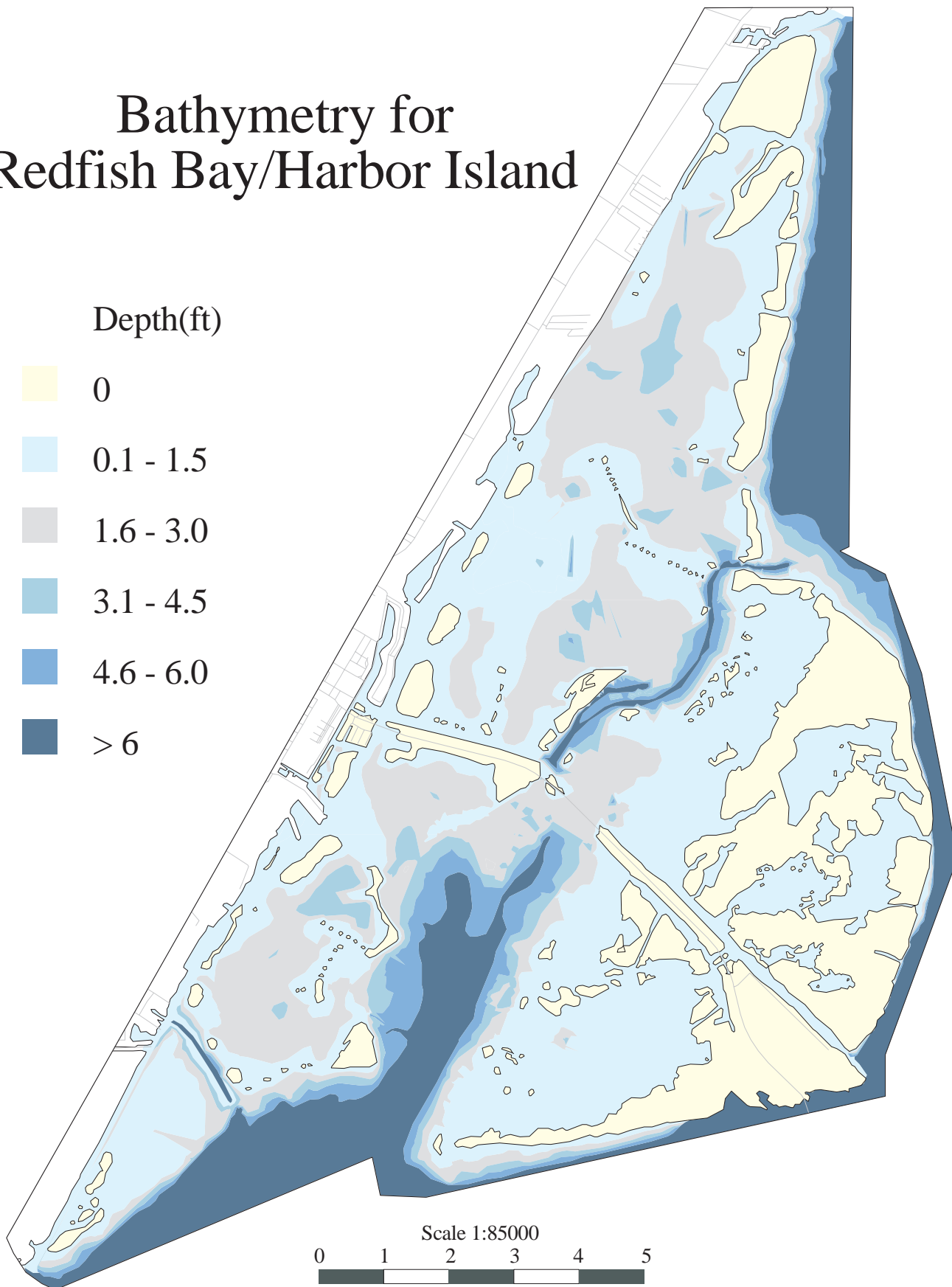
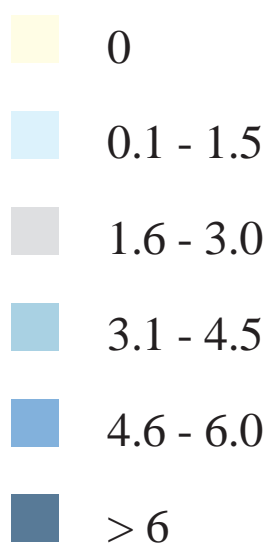
QAc101c

Figure 42. Aerial photograph from 1975 at ca 1:15,000 scale showing continuous, dense seagrass beds from same area of Redfish Bay as in Figure 41.

Figure 43. Map showing depth (bathymetry) zones developed by contour modeling for Redfish Bay/Harbor Island complex.

Bathymetry for Redfish Bay/Harbor Island

Depth(ft)



Scale 1:85000



kilometers

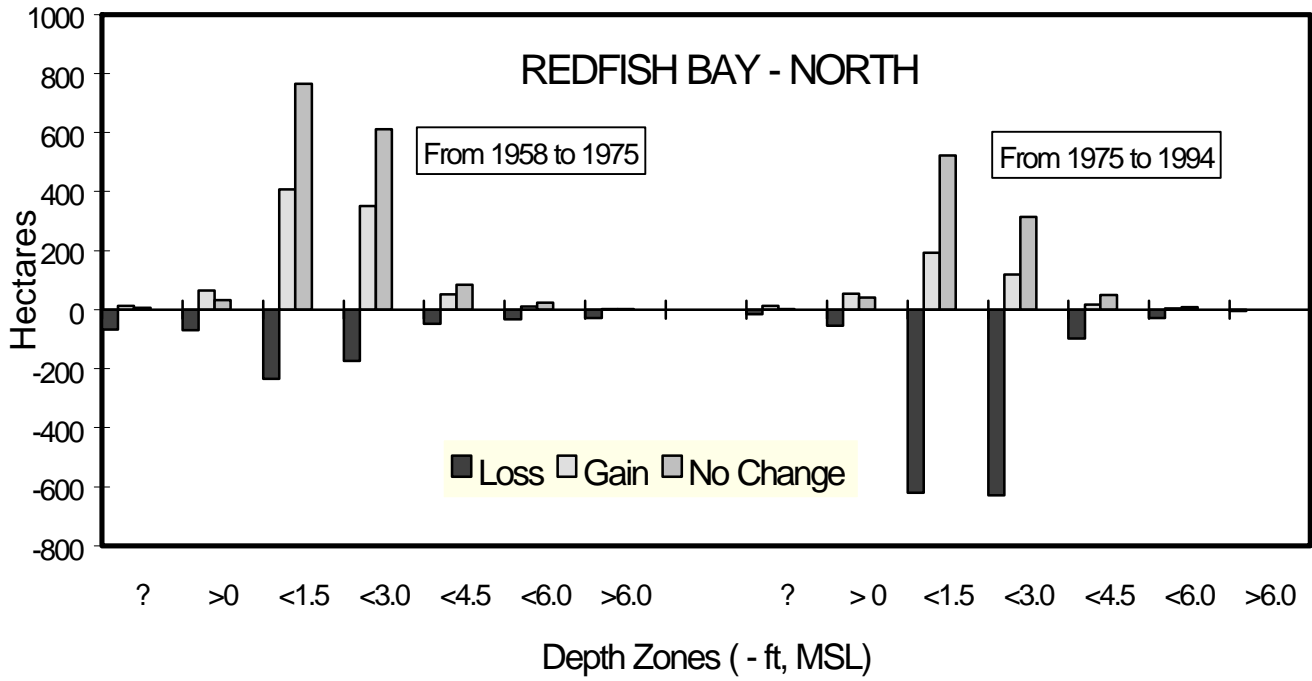


Figure 44. Graph of seagrass acreage changes occurring in different depth zones of north Redfish Bay area over two time increments (1958 - 1975 and 1975 - 1994).

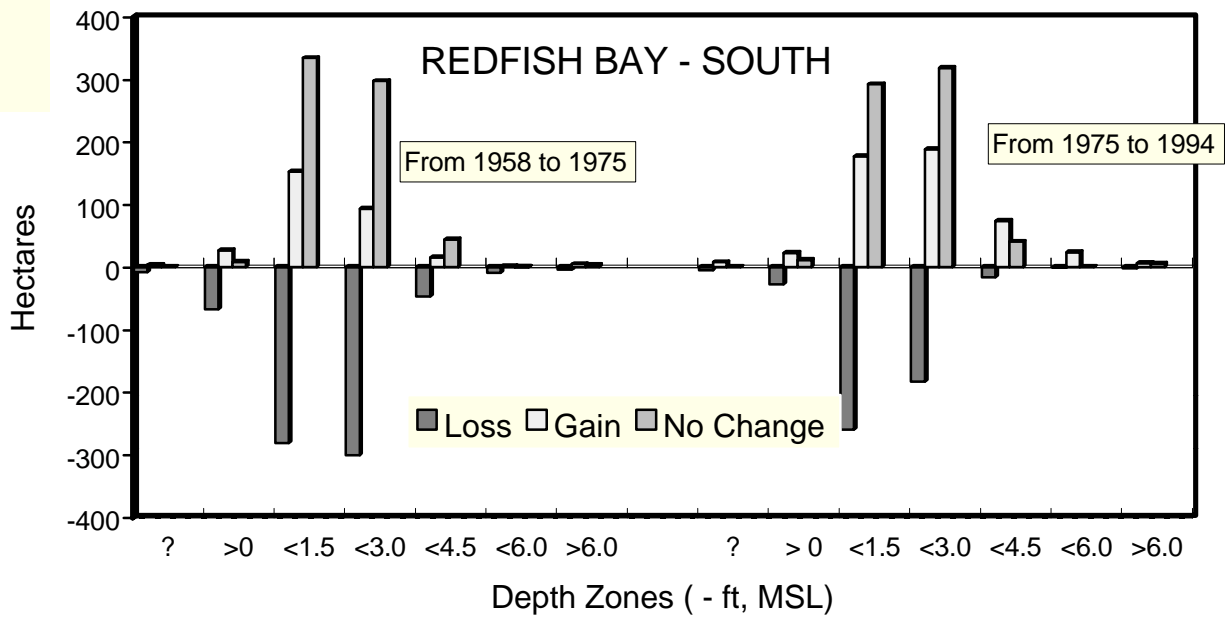


Figure 45. Graph of seagrass acreage changes occurring in different depth zones of south Redfish Bay area over two time increments (1958 - 1975 and 1975 - 1994).

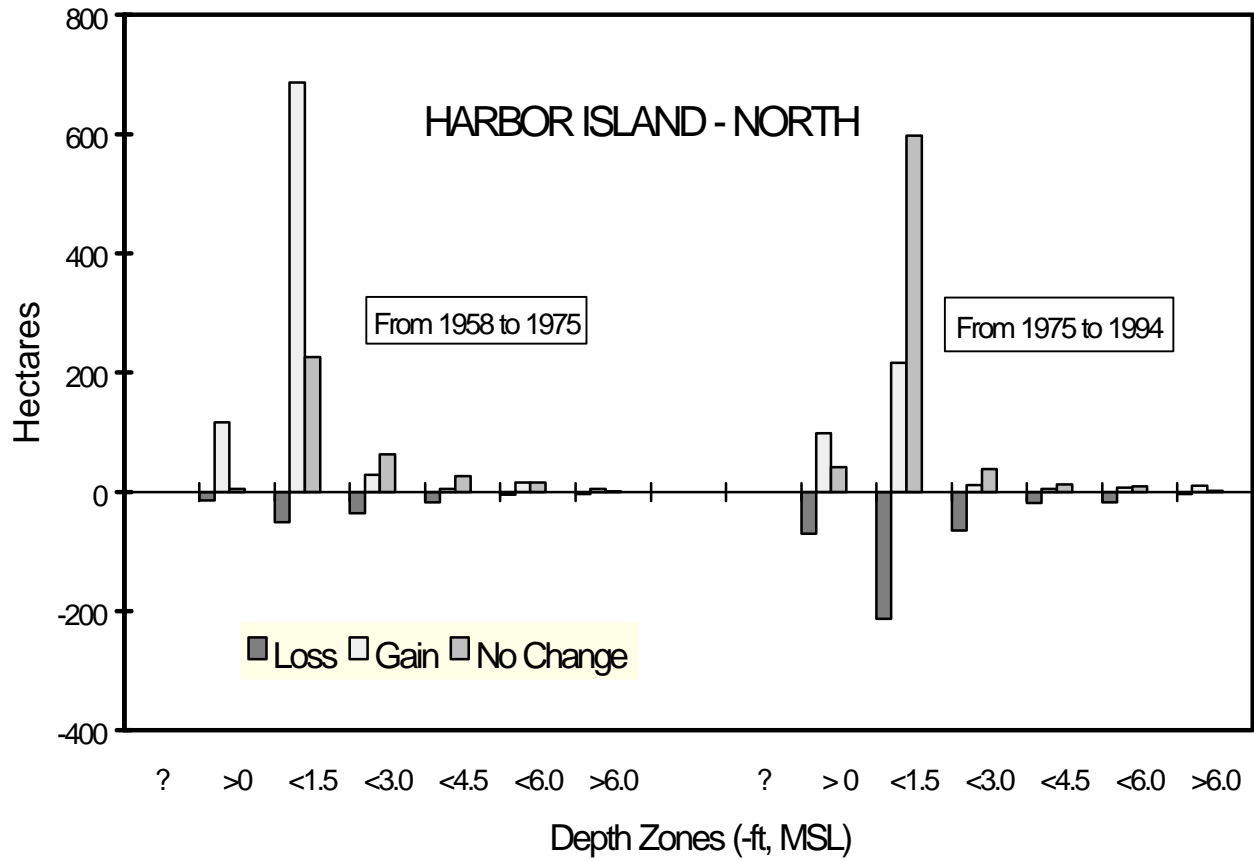


Figure 46. Graph of seagrass acreage changes occurring in different depth zones of north Harbor Island area over two time increments (1958 -1975 and 1975 - 1994).

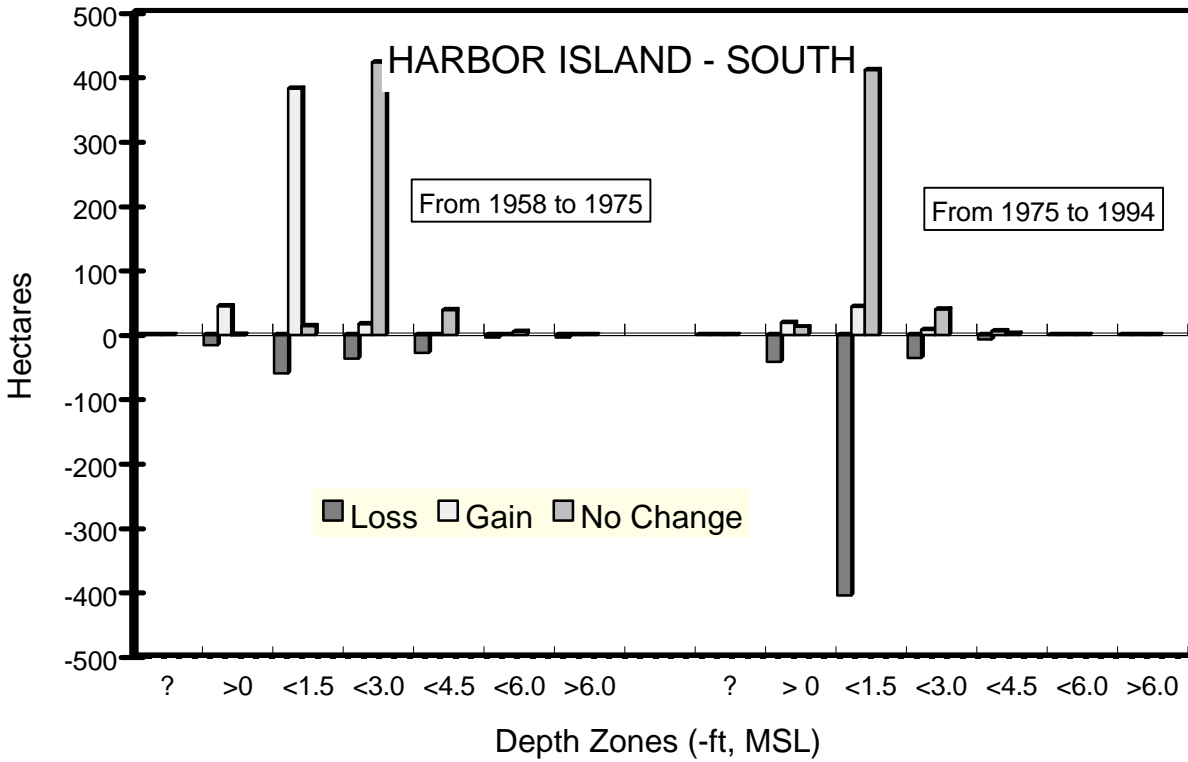


Figure 47. Graph of seagrass acreage changes occurring in different depth zones of south Harbor Island area over two time increments (1958 - 1975 and 1975-1994).