

Table 4. Site descriptions for survey locations in the Florida Keys National Marine Sanctuary and Biscayne National Park during June-August 2007. Sites are arranged from northeast to southwest within each habitat type and asterisked locations (**) are Sanctuary Preservation Areas (SPA), Ecological Reserves (ER), or Research Only Areas (RO).

Habitat type/site number and location	Site description
<i>Mid-channel patch reefs</i>	
Biscayne National Park	
445 - Northern Legare Anchorage	Offshore patch reef northwest of Triumph Reef, 12-16 feet, original waypoint was dense seagrass inshore of Star Reef, site was not hard-bottom, but an eroded elkhorn coral ridge, wave swept and dominated by gorgonians, small <i>Acropora palmata</i> observed along transects, numerous small colonies of <i>Acropora cervicornis</i>
441 - Bache Shoal	Mid-channel patch reef at Bache Shoal, 9-15 feet, large halo patch near marker, visibility poor, silty with large gorgonians and moderate relief, some large colonies of <i>M. cavernosa</i> , <i>S. siderea</i> and <i>Diploria</i> , no <i>Acropora</i> observed at site
440 - South of Bache Shoal	Mid-channel patch reef south of Bache Shoal, 8-19 feet, large linear mound, periphery with large head corals, interior of site with abundant <i>Porites astreoides</i> and sea fans, no <i>Acropora</i> observed at site
438 - South of Bache Shoal	Mid-channel patch reef south of Bache Shoal, 11-23 feet, large mound with high relief, large <i>Montastraea</i> colonies, very cavernous, abundant <i>Dictyota</i> , <i>Halimeda</i> and <i>Erythropodium</i> , numerous damselfish territories, small <i>Acropora cervicornis</i> observed at site, but not in transects
437 - South of Legare Anchorage	Mid-channel patch reef south of Legare Anchorage, 14-22 feet, large mound with high relief, 24 feet in sand, dominated by <i>Dictyota</i> algae, <i>Porites</i> , and mostly dead <i>Montastraea</i> heads, no <i>Acropora</i> observed at site
427 - Margot Fish Shoal	Mid-channel patch reef near Margot Fish Shoal, 13-21 feet, ~20 m in diameter, silty and surrounded by <i>Thalassia</i> seagrass, high relief and dominated by algal turf and gorgonians, no <i>Acropora</i> observed at site
421 - Margot Fish Shoal	Mid-channel patch reef south of Margot Fish Shoal marker, 7-14 feet, large mound, abundant <i>Porites</i> finger corals and <i>Echinometra</i> urchins, 15 feet in sand, dominated by <i>P. furcata</i> , <i>Erythropodium</i> , <i>S. siderea</i> and <i>P. astreoides</i> , water temperature 87°F, no <i>Acropora</i> observed at site
419 - Inshore of Ajax Reef	Mid-channel patch reef inshore of Ajax Reef, 11-20 feet, silty, 21 feet in sand halo, very high relief with abundant but mostly dead coral heads, water temperature 87°F, no <i>Acropora</i> observed at site
413 - Inshore of Pacific Reef	Mid-channel reef inshore of Pacific Reef, 10-16 feet, large mound, silty with abundant gorgonians, very few large corals, dominated by encrusting <i>Briareum</i> and <i>Erythropodium</i> , large gorgonians, no <i>Acropora</i> observed at site
410 - Inshore of Pacific Reef	Mid-channel reef inshore of Pacific Reef, 11-20 feet, large mound, ~40 m in diameter, abundant <i>Porites</i> finger corals, water temperature 85°C, <i>Acropora cervicornis</i> present on transects
408 - Offshore of Broad Creek	Mid-channel patch reef within Biscayne National Park, offshore of Broad Creek, 6-13 feet, bounded by dense <i>Thalassia</i> seagrass bed, relatively low profile, some <i>Montastraea</i> coral heads, abundant <i>Porites</i> finger corals and <i>Echinometra</i> urchins, no <i>Acropora</i> observed within site
406 - Offshore of Broad Creek	Mid-channel patch reef within Biscayne National Park, offshore of Broad Creek, 15-21 feet, high relief and dominated by gorgonians, corals and <i>Dictyota</i> algae, good visibility, abundant thickets of <i>Acropora cervicornis</i> throughout site
Upper Florida Keys NMS	
4 - Basin Hill Shoals	Reference mid-channel patch reef at Basin Hill Shoals, 3-9 feet, poor visibility, small patch reef, large colonies of <i>Montastraea</i> , thicket of staghorn coral on one transect, denuded substratum, very little macroalgae, abundant <i>Echinometra viridis</i>
2 - Near Cannon Patch Reef	Reference mid-channel patch reef near Cannon Patch Reef, 7-10 feet, similar to site 3, little macroalgae, large gorgonians, especially <i>Pseudoplexaura</i> , moderately large colonies of <i>Siderastrea</i> , <i>Stephanocoenia</i> , <i>Dichocoenia</i> , and <i>Diploria</i>
3 - Near Cannon Patch Reef	Reference mid-channel patch reef near Cannon Patch Reef, 5-7 feet, similar to site 2, little macroalgae, large gorgonians, especially <i>Pseudoplexaura</i> , moderately large colonies of <i>Siderastrea</i> , <i>Stephanocoenia</i> , <i>Dichocoenia</i> , and <i>Diploria</i>

Habitat type/site number and location	Site description
1 - Inshore of Molasses Reef	Reference mid-channel patch reef inshore of Molasses Reef, large site with abundant coral heads and large <i>Pseudoplexaura</i> gorgonians, very bad bleaching observed, water temperature 89°F, several large thickets of <i>Acropora cervicornis</i> observed at site, but not sampled within transects
Middle Florida Keys NMS	
69 - Tavernier Rocks	Reference mid-channel patch reef at Tavernier Rocks, northwest of Hen and Chickens SPA, 8-17 feet, decent visibility, patch reef ~20 m in diameter, high relief due to haystack <i>Montastraea</i> , several colonies fractured and overturned, site surrounded by sparse hard-bottom, abundant fishing gear on reef
71 - Hen and Chickens SPA**	Mid-channel patch reef at Hen and Chickens SPA, anchored near central eastern area of SPA, 9-22 feet, very high relief with haystack colonies of <i>Montastraea</i> , many with large patches of <i>Halimeda</i> , water temperature 87°F, bleaching prevalent, with most species and about 20% of all colonies
70 - Hen and Chickens SPA**	Mid-channel patch reef at Hen and Chickens SPA, mooring buoy HC10 near western corner, 9-19 feet, excellent visibility, haystack <i>Montastraea</i> colonies, many with large stands of <i>Halimeda</i> , bleaching prevalent
68 - East of Cheeca Rocks SPA	Reference mid-channel patch reef east of Cheeca Rocks SPA, mooring buoy CH8, 8-17 feet, slightly better visibility, large <i>M. annularis</i> and <i>C. natans</i> heads, <i>Halimeda</i> abundant, very high relief, bleaching prevalent, water temperature 88°F, no <i>Acropora</i> observed at site
72 - Cheeca Rocks SPA**	Mid-channel patch reef at Cheeca Rocks SPA, mooring buoy CH5, 8-15 feet, terrible visibility, very green water due to apparent phytoplankton bloom, large head corals and high relief, abundant <i>Halimeda</i> on many coral heads, bleaching prevalent, no <i>Acropora</i> observed at site
73 - Cheeca Rocks SPA**	Mid-channel patch reef at Cheeca Rocks SPA, mooring buoy CH6, 11-15 feet, terrible visibility, very green water due to apparent phytoplankton bloom, more scattered corals and sand, <i>Halimeda</i> common, bleaching prevalent, no <i>Acropora</i> observed at site
66 - East Turtle Shoal	Reference mid-channel patch reef north of Coffins Patch at East Turtle Shoal, 20-24 feet, sandy with moderate relief, dominated by gorgonians and corals, relatively clean substratum, but not many urchins observed, no <i>Acropora</i> observed at site, water temperature 89°F, bleaching of several corals, including <i>C. natans</i> , <i>Siderastrea</i> , <i>D. labyrinthiformis</i> , <i>A. agaricites</i> , <i>S. intersepta</i> and <i>M. alcicornis</i>
254 - East Turtle Shoal	Reference mid-channel patch reef north of Coffins Patch at East Turtle Shoal, 14-22 feet, original site (67) consisted of dense seagrass patches, secondary site south of site 66, very large corals, especially <i>C. natans</i> and <i>M. cavernosa</i> , high relief, bleaching of most coral species, particularly <i>C. natans</i> , <i>Siderastrea</i> , <i>Porites</i> , <i>Eusmilia</i> , <i>Meandrina</i> , and <i>Millepora</i>
Lower Florida Keys NMS	
122 - North of Big Pine Shoal	Reference mid-channel patch reef north of Big Pine Shoal, 27-29 feet, green water, broken up and very patchy, generally low profile, abundant coral recruits, debris prevalent, especially rope, water temperature 89°F, prevalent paling and bleaching of corals, especially <i>O. diffusa</i> , <i>Siderastrea</i> , and <i>S. intersepta</i>
121 - North of Maryland Shoal	Reference mid-channel patch reef north of Maryland Shoal, 20-27 feet, dominated by gorgonians and large corals, especially <i>M. faveolata</i> and <i>C. natans</i> , abundant <i>Echinometra</i> urchins, <i>A. cervicornis</i> present on transects, paling or bleaching of <i>S. siderea</i> and <i>C. natans</i> , trap rope observed on staghorn coral, water temperature 88°F
120 - North of Maryland Shoal	Reference mid-channel patch reef north of Maryland Shoal, 18-22 feet, north of Maryland Shoal marker, large linear patch, large gorgonians and coral heads, <i>A. cervicornis</i> present on transects, water temperature 88°F
119 - North of Pelican Shoal	Reference mid-channel patch reef north of Pelican Shoal, 16-23 feet, gorgonians and corals dominant, clean substratum and abundant <i>E. viridis</i> urchins, <i>A. cervicornis</i> present on transects, water temperature 88°F, several corals bleaching, especially <i>S. siderea</i> and <i>C. natans</i>
118 - East of Western Sambo ER	Reference mid-channel patch reef east of Western Sambo Ecological Reserve, 15-18 feet, east of reserve, very large site, generally low profile on top, abundant coral recruits, isolated but large colonies of <i>M. cavernosa</i> and <i>C. natans</i> , water temperature 87°F, very little bleaching, no <i>A. cervicornis</i> observed at site

Habitat type/site number and location	Site description
126 - Western Sambo ER**	Mid-channel patch reef within Western Sambo Ecological Reserve, 19-29 feet, northeastern area of reserve, large mound with high relief, silty, large corals, especially <i>M. cavernosa</i> and <i>S. siderea</i> , no <i>A. cervicornis</i> observed at site
125 - Western Sambo ER**	Mid-channel patch reef within Western Sambo Ecological Reserve, 19-23 feet, similar to site 123, but greater relief, larger corals, especially <i>M. cavernosa</i> , <i>S. siderea</i> and <i>S. intersepta</i> , water temperature 87°F, <i>A. cervicornis</i> present
124 - Western Sambo ER**	Mid-channel patch reef within Western Sambo Ecological Reserve, 19-24 feet, large mound, high relief, large gorgonians dominant, <i>A. cervicornis</i> present
123 - Western Sambo ER**	Mid-channel patch reef within Western Sambo Ecological Reserve, 16-19 feet, low profile, large gorgonians and <i>Palythoa</i> , dominant, small corals, <i>A. cervicornis</i> present on transects, water temperature 87°F, poor visibility
117 - NW of Sand Key SPA	Reference mid-channel patch reef northwest of Sand Key SPA, 16-20 feet, small mound, low profile, some coral heads, abundant and large <i>Dictyota</i> algae, water temperature 88°F
116 - North of Satan Shoal	Reference mid-channel patch reef, North of Satan Shoal, 18-22 feet, similar to site 115, low profile, some <i>M. cavernosa</i> heads, <i>Acropora cervicornis</i> present, water temperature 86°F, several coral species pale
115 - North of Satan Shoal	Reference mid-channel patch reef, North of Satan Shoal, 17-20 feet, relatively low profile, dominated by gorgonians, water temperature 87°F, <i>Acropora cervicornis</i> present at site
<i>Offshore patch reefs</i>	
Biscayne National Park	
471 - Northwest of Triumph Reef	Offshore patch reef northwest of Triumph Reef, 12-16 feet, original waypoint was dense seagrass inshore of Star Reef, site was not hard-bottom, but an eroded elkhorn coral ridge, wave swept and dominated by gorgonians, small <i>Acropora palmata</i> observed along transects, numerous small colonies of <i>Acropora cervicornis</i>
461 - NW of Long Reef	Offshore patch reef northwest of Long Reef, 14-18 feet, good visibility, large site with complex substratum, abundant <i>Agaricia</i> corals, sea plumes, sea fans and <i>Dictyota</i> algae, water temperature 87°F, no <i>Acropora</i> observed at site
460 - NW of Long Reef	Offshore patch reef northwest of Long Reef, 33-41 feet, deep linear mound, good visibility, 41 feet in sand, very high relief and abundant corals, <i>Dictyota</i> algae, <i>Erythropodium</i> and <i>Briareum</i> abundant, no <i>Acropora</i> observed at site
459 - NW of Pacific Reef	Offshore patch reef northwest of Pacific Reef, 22-26 feet, large mound with moderate relief, 27 feet in sand, dominated by <i>Dictyota</i> , gorgonians and <i>Porites</i> corals, <i>Acropora cervicornis</i> present on transects
458 - Inshore of Pacific Reef	Offshore patch reef within Biscayne National Park, inshore of Pacific Reef, 11-15 feet, large mound, relatively low profile on top with apparent elkhorn coral framework, dominated by sandy algal turf, <i>Dictyota</i> algae, sea plumes, and <i>Millepora</i> , relatively few scleractinian corals, no <i>Acropora</i> observed at site
456 - Inshore of Pacific Reef	Offshore patch reef within Biscayne National Park, inshore of Pacific Reef, 29-37 feet, dome-shaped mound, relatively deep with distinct halo, large corals and high relief, especially on periphery, large (~ 0.5 m) patch of <i>Acropora cervicornis</i> within transects
454 - Northwest of Whistle Buoy	Offshore patch reef within Biscayne National Park, northwest of Whistle Buoy at SE BNP boundary, 35-39 feet, very large linear mound, excellent visibility, very diverse assemblage of sponges, gorgonians and corals, moderate relief, several small thickets of <i>Acropora cervicornis</i> observed within transects
Upper Florida Keys NMS	
16 - North of Carysfort Reef SPA	Reference offshore patch reef north of Carysfort SPA, 32-37 feet, low-profile mound, large, sandy with some large corals
15 - North of Carysfort Reef SPA	Reference offshore patch reef north of Carysfort SPA, 8-15 feet, elkhorn coral base, sea fans and fire coral abundant, paling and bleaching of <i>Palythoa</i> , one elkhorn coral colony within transects
14 - North of Carysfort Reef SPA	Reference offshore patch reef north of Carysfort SPA, 18-28 feet, similar to site 16, but shallower, large mound, greater relief, abundant sponges
47 - Carysfort Reef SPA**	Offshore patch reef in central-western Carysfort Reef SPA, supposed to be deeper hard-bottom, but high relief, well-defined halo, abundant and large spiny lobster
345 - Carysfort Reef SPA**	Offshore patch reef in northwestern Carysfort Reef SPA, 16-20 feet, relatively small (20-30 m diameter) patch, dead <i>Montastraea annularis</i> colonies along periphery

Habitat type/site number and location	Site description
46 - Carysfort Reef SPA**	Offshore patch reef in central Carysfort SPA, 20-24 feet, supposed to be deeper hard-bottom, periphery lower profile, but interior of site very high relief with elkhorn coral base
39 - Carysfort Reef SPA**	Offshore patch reef in southwestern corner of Carysfort SPA, 14-20 feet, ~20 m diameter patch, bounded by dense seagrass, gorgonians dominant, one small colony of staghorn coral found
37 - West of Carysfort Reef SPA	Reference offshore patch reef west of Carysfort Reef SPA, 9-12 feet, supposed to be shallow hard-bottom, but moderate relief, mounding structure, elkhorn coral base on top, grades into lower profile area, abundant and large <i>Diadema</i> urchins
13 - Inshore of Watson's Reef	Reference offshore patch reef inshore of Watson's Reef, 10-25 feet, bottoms out in sand at 28 feet, large mound with complex and high-relief structure, comprised of mostly dead head corals, especially <i>Montastraea</i> and <i>Siderastrea</i> , one of several patch reefs in general area
55 - Inshore of Watson's Reef	Supposed to be reference patchy hard-bottom inshore of Watson's Reef, but offshore, linear patch reef mounds ~25 m in width and more than 50 m long, several in vicinity, 43 feet in sand, rising to 36-37 feet on top of mound, dominated by algae and gorgonians, but many species of corals
358 - Inshore of Watson's Reef	Replicate for site 54, inshore of Watson's Reef, reef terrace-like habitat, 40-48 feet, dominated by <i>Montastraea</i> heads, slopes down to 50 feet in sand, excellent visibility, corals very speciose, dominated by <i>Dictyota</i> and <i>Lobophora</i> algae and <i>Erythropodium</i> , abundant <i>Porites</i> and <i>Acropora</i> rubble, water temperature 87°F, no <i>Acropora</i> observed at site
54 - Inshore of Watson's Reef	Supposed to be reference patchy hard-bottom inshore of Watson's Reef, but reef terrace-like habitat, 41-44 feet, dominated by staghorn coral rubble and mostly dead <i>Montastraea</i> mounds, very similar to Carysfort Reef terrace, corals speciose, abundant juvenile corals
347 - Inshore of Watson's Reef	Reference offshore patch reef near Watson's Reef, 24-26 feet, close to site 12, mound with relatively low relief on top, gorgonians and smaller corals abundant, one small staghorn coral colony observed in general survey area
12 - Inshore of Watson's Reef	Reference offshore patch reef near Watson's Reef, 31-34 feet, close to site 402, mound with relatively moderate relief on top, rich diversity of stony corals, some larger colonies
9 - White Banks	Reference offshore patch reef in White Banks area, large mound ~25-30 m across, topographically complex, abundant sea plumes, sea fans, and finger corals, several small staghorn colonies present
8 - Inshore of French Reef	Reference offshore patch reef inshore of French Reef on White Banks, low profile and interspersed with <i>Thalassia</i> seagrass, dominated by gorgonians, algae and intermittent colonies of <i>S. siderea</i> and <i>S. bournoni</i> , water temperature 88°F, no <i>Acropora</i> observed at site
7 - Inshore of Molasses Reef	Reference offshore patch reef inshore of Molasses Reef, abundant <i>Porites</i> finger corals and coral rubble, dominated by <i>Dictyota</i> , low profile, isolated <i>S. siderea</i> heads, abundant urchins, water temperature 88°F, one colony of <i>Acropora cervicornis</i> observed at site, but not within transects
6 - Inshore of Molasses Reef	Reference offshore patch reef inshore of Molasses Reef, shoreward side 22 feet deep in sand, line of <i>Montastraea</i> colonies and <i>Dictyota</i> , seaward is lower profile area with <i>Porites</i> finger corals, some large colonies of <i>C. natans</i> and <i>M. annularis</i> , water temperature 88°F, several thickets of <i>Acropora cervicornis</i> observed along transects
5 - Inshore of Pickles Reef	Reference offshore patch reef inshore of Pickles Reef, small site, ~ 15 m in diameter, large halo with adjacent dense seagrass, dominated by <i>Dictyota</i> and <i>Sargassum</i> algae, gorgonians, and some coral heads, water temperature 88°F, no <i>Acropora</i> observed at site, TNC staghorn coral arrays near inshore edge of patch reef
Middle Florida Keys NMS	
77 - Inshore of Conch Reef SPA	Reference offshore patch reef inshore of Conch Reef SPA, 13-15 feet, scattered coral heads and generally low profile, dominated by <i>Dictyota</i> and gorgonians, seagrass interspersed throughout patch, <i>A. cervicornis</i> present on transects
76 - Inshore of Conch Reef SPA	Reference offshore patch reef inshore of Conch Reef SPA, 12-18 feet, dominated by gorgonians, <i>Dictyota</i> and small corals, some coral heads, but generally broken up, few urchins, abundant fishing line, several <i>A. cervicornis</i> colonies within transects
75 - Inshore of Conch Reef SPA	Reference offshore patch reef inshore of Conch Reef SPA, 13-15 feet, excellent visibility, small site with moderate relief, chunks of old reef with some <i>D. clivosa</i> , <i>S. siderea</i> and <i>S. bournoni</i> heads, site surrounded by dense <i>Thalassia</i> and <i>Syringodium</i> seagrasses, no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
74 - Inshore of Conch Reef SPA	Reference offshore patch reef inshore of Conch Reef SPA, 13-15 feet, excellent visibility, small site with moderate relief, dominated by <i>Dictyota</i> , <i>Sargassum</i> and <i>Porites</i> finger corals, site surrounded by dense <i>Thalassia</i> and <i>Syringodium</i> seagrasses, several small colonies of <i>Acropora cervicornis</i> observed at site
98 - Coffins Patch SPA**	Offshore patch reef within Coffins Patch SPA, 18-21 feet, supposed to be deeper hard-bottom, but moderate relief reef in sand, appears to be old elkhorn coral reef, abundant <i>A. cervicornis</i> rubble, dominated by gorgonians and small corals like <i>D. stokesi</i> and <i>S. siderea</i> , no <i>Acropora</i> observed at site, water temperature 86°F, bleaching by <i>D. stokesi</i> and <i>S. radians</i>
277 - Coffins Patch SPA**	Offshore patch reef within Coffins Patch SPA, 21-23 feet, supposed to be deeper hard-bottom, similar to site 98, more sand and less relief, three <i>A. cervicornis</i> colonies present on transects, paling to bleaching of <i>Agaricia</i> and <i>Siderastrea</i> corals
Lower Florida Keys NMS	
133 - Looe Key Research Only**	Offshore patch reef within Looe Key Research Only, 19-24 feet, near central area of RO, fewer large corals than site 132, dominated by <i>Palythoa</i> and gorgonians, <i>A. cervicornis</i> present at site but not in transects, paling to bleaching of <i>M. cavernosa</i> , <i>Siderastrea</i> , and <i>S. intersepta</i>
132 - Looe Key Research Only**	Offshore patch reef within Looe Key Research Only, 21-26 feet, good visibility, near western end of RO, <i>A. cervicornis</i> present on transects, water temperature 87°F, paling to bleaching of <i>Agaricia</i> and <i>Siderastrea</i>
131 - North of Looe Key SPA**	Reference offshore patch reef north of Looe Key SPA, 21-23 feet, good visibility, dominated by gorgonians, generally low profile, some <i>D. strigosa</i> heads, abundant <i>A. cervicornis</i> colonies
130 - Maryland Shoal	Reference offshore patch reef at Maryland Shoal, 29-32 feet, large linear patch reef, clean substratum and little macroalgae, <i>A. cervicornis</i> observed along transects
129 - North of Maryland Shoal	Reference offshore patch reef north of Maryland Shoal, 20-32 feet, large mound with many large coral heads, especially <i>M. cavernosa</i> , little macroalgae, <i>A. cervicornis</i> present on transects
165 - North of Maryland Shoal	Reference offshore patch reef north of Maryland Shoal, 28-32 feet, original waypoint was dense seagrass surrounded by large area of sand, large linear patch, high relief, abundant corals, <i>A. cervicornis</i> present on transects
128 - NE of Eastern Sambo RO	Reference offshore patch reef northeast of Eastern Sambo RO, 27-30 feet, broken up, patches of reef interspersed with sand, moderate relief, abundant coral heads and juvenile corals
135 - Western Sambo ER**	Offshore patch reef within Western Sambo Ecological Reserve, 24-30 feet, large mound, abundant corals, silty, little macroalgae, pale <i>S. siderea</i> colonies, water temperature 87°F, <i>A. cervicornis</i> present in general survey area
168 - Western Sambo ER**	Offshore patch reef within Western Sambo Ecological Reserve, 27-34 feet, original waypoint was seagrass, large mound 41 feet deep at base, 27 feet on top, abundant corals and recruits, especially <i>S. siderea</i> , <i>S. intersepta</i> and <i>C. natans</i> , silty, few macroalgae, water temperature 88°F
127 - West of Sand Key SPA	Reference offshore patch reef west of Sand Key SPA, 31-42 feet, large (> 10 m) boulders, very high relief, 43 feet in sand, abundant corals and sponges, as well as coral recruits, water temperature 86°F, no staghorn coral observed
Hard-bottom/rubble/sand matrix	
Upper Florida Keys NMS	
40 - Carysfort Reef SPA**	Low-relief hard-bottom/matrix community in northern Carysfort SPA, 11-18 feet, supposed to be continuous hard-bottom, but broken-up substratum, sea plumes dominant, some smaller coral heads
38 - West of Carysfort Reef SPA	Reference hard-bottom/rubble/sand matrix habitat north of Carysfort SPA, 9-10 feet, supposed to be shallow hard-bottom, loosely consolidated and patchy, gorgonians abundant, prevalent dark spot and pre-bleaching on <i>S. siderea</i> and <i>S. intersepta</i>
36 - West of Carysfort Reef SPA	Low-relief hard-bottom/matrix community west of the SW corner of Carysfort SPA, 15-19 feet, complex substratum with mix of sand, rubble and patches of high-relief but mostly dead coral structure, bounded by dense seagrass
11 - NW of Dry Rocks SPA	Low-relief hard-bottom/seagrass matrix habitat, 10-13 feet, northwest of Dry Rocks SPA, supposed to be offshore patch reef, but matrix of hard-bottom and seagrass, well scoured, little macroalgae, generally very low relief, gorgonians dominant, some small coral heads
Low-relief hard-bottom (< 6 m)	
Biscayne National Park	

Habitat type/site number and location	Site description
475 - Fowey Rocks	Shallow (< 6 m) low-relief hard-bottom at Fowey Rocks, 13-15 feet, scoured and wave swept, substratum broken up and dominated by turf algae, gorgonians and fire coral, scleractinian corals small and sparse, one small colony of <i>Acropora cervicornis</i> was observed on one of the transects
469 - South of Ajax Reef	Shallow, low-relief hard-bottom (< 6 m) south of Ajax Reef, 10-14 feet, elkhorn coral framework, but very eroded, scoured and dominated by sandy algal turf, abundant gorgonians and fire coral, no <i>Acropora</i> observed at site
Upper Florida Keys NMS	
346 - Carysfort Reef SPA**	Low-relief hard-bottom in northwestern corner of Carysfort Reef SPA, 18-23 feet, supposed to be replicate shallow hard-bottom, but matrix of moderate relief reef and some flat areas, <i>Dictyota</i> algae and sea plumes dominant, looks like old elkhorn coral reef
35 - West of Carysfort Reef SPA	Reference low-relief hard-bottom west of Carysfort Reef SPA, 9-10 feet, mixture of hard-bottom and dense <i>Thalassia</i> seagrass, small colonies of <i>S. siderea</i> and <i>D. stokesi</i> , a few small staghorn corals observed
34 - West of Carysfort Reef SPA	Reference low-relief hard-bottom west of Carysfort Reef SPA, 13-15 feet, mixture of hard-bottom, seagrass, and some reef structure, complex habitat, looks like eroded patch reef, gorgonians and <i>Styopodium</i> algae dominant, more relief than site #35
33 - Inshore of Watson's Reef	Reference low-relief hard-bottom inshore of Watson's Reef, 11-14 feet, part of site very low profile, other areas with moderate relief, looks like eroded patch reef, <i>Dictyota</i> algae and gorgonians dominant
17 - Little Pickles Reef	Reference shallow (< 6 m) hard-bottom at Little Pickles Reef, original waypoint was in deep water and shallower area was not spur and groove, site dominated by sandy algal turf, <i>H. tuna</i> , gorgonians and fire coral, very few corals and mostly small, water temperature 87°F, no <i>Acropora</i> observed at site
Middle Florida Keys NMS	
269 - Conch Reef SPA**	Shallow (< 6 m) low-relief hard-bottom within Conch Reef SPA, 18-22 feet, mooring buoy CO2, transects placed from inshore edge of ridge seaward, elkhorn coral base, some dead upright elkhorn skeletons, dominated by <i>Dictyota</i> and sea plumes, very few corals, no <i>Acropora</i> observed at site
89 - Conch Reef SPA**	Shallow (< 6 m) low-relief hard-bottom within Conch Reef SPA, 15-18 feet, mooring buoy CO1, similar to site 269, but slightly shallower, water temperature 88°F, no <i>Acropora</i> observed at site
88 - Little Conch Reef	Reference shallow (< 6 m) low-relief hard-bottom southwest of Conch Reef SPA at Little Conch Reef, 14-17 feet, wave-swept and low profile, elkhorn coral base, little macroalgae, dominated by gorgonians, fire coral, and small scleractinian corals, water temperature 85°F, no <i>Acropora</i> observed at site
352 - Little Conch Reef	Reference shallow low-relief hard-bottom at Little Conch Reef, site 87 inshore of Davis Reef was seagrass and sand, 14-15 feet, low profile and scoured, dominated by algal turf, gorgonians and fire coral, corals mostly small, water temperature 87°F, no <i>Acropora</i> observed at site
97 - Davis Reef SPA**	Shallow low-relief hard-bottom (< 6 m) within Davis Reef SPA, mooring buoy DL4, 16-17 feet, low profile and scoured with little macroalgae, dominated by turf, <i>H. tuna</i> , fire coral, <i>Palythoa</i> and gorgonians, water temperature 86°F, no <i>Acropora</i> observed at site
90 - Davis Reef SPA**	Shallow low-relief hard-bottom (< 6 m) within Davis Reef SPA, mooring buoy DL2, 19-23 feet, transects near shoreward ledge, dominated by algal turf, <i>Dictyota</i> , <i>H. tuna</i> , <i>Palythoa</i> and sea plumes, very few corals, no <i>Acropora</i> observed at site
86 - South of Windley Key	Reference shallow (< 6 m) hard-bottom south of Windley Key, 11-14 feet, bounded by seagrass and sand, looks like eroded down patch reef, low profile, dominated by <i>Cladophoropsis</i> and <i>Dictyota</i> algae, gorgonians and <i>D. clivosa</i> , several large <i>Diadema</i> urchins, <i>A. cervicornis</i> observed on transects
103 - NE of Alligator Light	Reference shallow (< 6 m) low-relief hard-bottom northeast of Alligator Light, 16-19 feet, supposed to be low-relief spur and groove, but shallower and similar in appearance to Alligator Reef, dominated by <i>Sargassum</i> , <i>Dictyota</i> , gorgonians and fire coral, elkhorn coral framework, but no <i>Acropora</i> observed at site, water temperature 88°F
82 - Alligator Reef SPA**	Shallow (< 6 m) low-relief hard-bottom within Alligator Reef SPA, 13-18 feet, transects near mooring buoy A4 on shoreward edge of relict reef flat, dominated by <i>Dictyota</i> algae and gorgonians, very few corals, no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
81 - Alligator Reef SPA**	Shallow (< 6 m) low-relief hard-bottom within Alligator Reef SPA, 18-21 feet, transects near mooring buoy A1 on relict reef flat, bloom of green cyanobacteria/diatoms, dominated by <i>Dictyota</i> , <i>H. tuna</i> and <i>Palythoa</i> , very few corals, water temperature 87°F, no <i>Acropora</i> observed at site
350 - Tennessee Light	Reference low-relief hard-bottom (> 6 m) at Tennessee Lighthouse, 18-20 feet, green water, transects just south of lighthouse, very old and eroded <i>A. palmata</i> reef, very few corals, dominated by <i>Dictyota</i> and <i>Palythoa</i> , water temperature 88°F, bleaching of <i>Palythoa</i>
85 - East of Coffins Patch SPA	Reference low-relief hard-bottom (< 6 m) east of Coffins Patch SPA, 16-19 feet, dominated by <i>Dictyota</i> , <i>H. tuna</i> and gorgonians, no <i>Acropora</i> observed at site
92 - Coffins Patch SPA**	Low-relief hard-bottom (< 6 m) within Coffins Patch SPA, 12-14 feet, second site of hard-bottom shoreward of mooring buoys, dominated by <i>H. tuna</i> and <i>Dasycladus</i> algae, small corals, no <i>Acropora</i> observed at site
91 - Coffins Patch SPA**	Low-relief hard-bottom (< 6 m) within Coffins Patch SPA, 16-20 feet, near westernmost mooring buoy (CP7), some seagrass interspersed with mound of hard-bottom, tapers down to 20 feet offshore, dominated by gorgonians and <i>H. tuna</i> , no <i>Acropora</i> observed at site
Lower Florida Keys NMS	
161 - West of American Shoal	Reference low-relief hard-bottom west of American Shoal, 16-19 feet, very low profile and old elkhorn coral reef, dominated by algal turf, fire coral, and gorgonians, <i>A. cervicornis</i> present at site, but not in transects, water temperature 86°F
140 - Maryland Shoal	Reference low-relief hard-bottom at Maryland Shoal, 17-18 feet, supposed to be high-relief spur and groove, but very eroded and low-profile <i>Acropora</i> reef, scoured and little macroalgae, dominated by <i>M. alcornis</i> and <i>H. tuna</i> , very few scleractinian corals, no <i>Acropora</i> observed at site, water temperature 87°F
159 - North of Pelican Shoal	Reference low-relief hard-bottom north of Pelican Shoal, 15-17 feet, on shoreward side of spur and groove system, little macroalgae, gorgonians and <i>S. vesparium</i> dominant, <i>A. cervicornis</i> present on transects
158 - East of No Name Reef	Reference low-relief hard-bottom east of No Name Reef, 16-17 feet, low profile, dominated by <i>Dictyota</i> and <i>Styopodium</i> algae and gorgonians, <i>A. cervicornis</i> rubble present, live <i>A. cervicornis</i> observed on transects
Inner line reef tract spur and groove	
Upper Florida Keys NMS	
61 - Turtle Reef	Reference inner line reef tract at Turtle Reef, 13-20 feet, elkhorn coral base, northern extension of inner line reef tract, intermittent staghorn coral colonies, lobster rope prevalent, moderate to high relief
60 - Inshore of Elbow Reef SPA	Reference inner line reef tract inshore of Elbow Reef SPA, northern extension of inner line reef tract, poor visibility, site well scoured, broken up in several places, staghorn coral present in transects
59 - Inshore of Elbow Reef SPA	Reference inner line reef tract inshore of Elbow Reef SPA, south of site 60, more scoured, less relief, some large coral heads, both staghorn and elkhorn coral observed within transects
58 - Horseshoe Reef	Reference inner line reef tract at Horseshoe Reef, 7-13 feet, one staghorn coral colony observed, small elkhorn corals in interior of site, huge stand of live elkhorn near mooring buoy
62 - Dry Rocks SPA**	Inner line reef tract at Dry Rocks SPA, 5-11 feet, mooring buoy 4, strong surge, abundant dead elkhorn coral, dominated by sea fans, fire coral, and <i>Porites astreoides</i> , small patch of elkhorn coral along transect 4
63 - Dry Rocks SPA**	Inner line reef tract at Dry Rocks SPA, 5-7 feet, southern side of SPA, lower profile, scoured bottom, elkhorn coral rubble abundant, one small elkhorn coral colony observed outside of transects
65 - Grecian Rocks SPA**	Inner line reef tract at Grecian Rocks SPA, 5-11 feet, mooring buoy G11, northern side of reef, strong surge, fewer corals than southern side, well scoured, elkhorn coral framework
64 - Grecian Rocks SPA**	Inner line reef tract at Grecian Rocks SPA, 5-9 feet, mooring buoy G3, strong surge, south side of SPA, large <i>Montastraea</i> coral heads, abundant but dead elkhorn coral rubble, small live elkhorn observed in general survey area
High-relief spur & groove	
Biscayne National Park	

Habitat type/site number and location	Site description
474 - Brewster Reef	High-relief spur and groove at Brewster Reef, 14-20 feet, supposed to be hard-bottom, but moderate-relief elkhorn coral framework, dominated by <i>Erythropodium</i> , fire coral and <i>Palythoa</i> , corals sparse, no <i>Acropora</i> observed at site
472 - Star Reef	High-relief spur and groove at Star Reef, 13-16 feet, similar in appearance to Long Reef, elkhorn coral framework, but eroded and scoured, dominated by algal turf, sea plumes, sea fans, and <i>Palythoa</i> , no <i>Acropora</i> observed at site
470 - Triumph Reef	High-relief spur and groove at Triumph Reef, 16-20 feet, supposed to be hard-bottom, but moderate-relief elkhorn coral framework, very scoured and rough seas, dominated by algal turf, sea fans, sea plumes and fire coral, few scleractinian corals and no <i>Acropora</i> observed at site
467 - Long Reef	High-relief spur and groove at Long Reef, 11-15 feet, very eroded and cross between low-relief hard-bottom and high-relief spur and groove, elkhorn coral framework parallel to shore, no definitive spur and groove structure, scoured and dominated by algal turf, crustose coralline algae and sea fans, corals very sparse, small <i>Acropora palmata</i> observed within transects
466 - Ajax Reef	High-relief spur and groove at Ajax Reef, 12-16 feet, north end of reef, dominated by algal turf, sea fans and <i>Palythoa</i> , very few corals, well scoured, no <i>Acropora</i> observed at site
465 - Ajax Reef	High-relief spur and groove at Ajax Reef, 13-17 feet, southern end of reef, elkhorn coral base, dominated by algal turf, crustose coralline algae, <i>Palythoa</i> and sea fans, very few corals, no <i>Acropora</i> observed at site
464 - Pacific Reef	High-relief spur and groove at Pacific Reef, 13-16 feet, good visibility, just northeast of marker, scoured substratum with little macroalgae, dominated by algal turf, sea fans, <i>Palythoa</i> and crustose coralline algae, very few corals, no <i>Acropora</i> observed at site
Upper Florida Keys NMS	
26 - Carysfort Reef SPA**	High-relief spur and groove near lighthouse at Carysfort Reef, 11-18 feet, near NE extent of spur and groove zone at stake, turf and CCA dominant, low live coral cover
25 - Carysfort Reef SPA**	<i>Acropora palmata</i> zone near lighthouse at Carysfort Reef SPA, 3-9 feet, no spur and groove, old reef flat habitat, shallow, dominated by algal turf and CCA, sea fans abundant, few coral species very low coral cover
218 - South Carysfort Reef SPA**	High-relief spur and groove at South Carysfort Reef within Carysfort SPA, 2-6 feet, transects placed in old elkhorn coral zone, bottom dominated by algal turf, crustose corallines, and sea fans, low live coral cover and no live elkhorn coral observed
217 - South Carysfort Reef SPA**	High-relief spur and groove at South Carysfort Reef within Carysfort SPA, 4-9 feet, transects placed near boundary of spur and groove and reef flat, similar area surveyed in 2006, abundant patches of live elkhorn coral, some with white necrotic patches, others damaged by damselfishes, otherwise in good condition
24 - Maitland Grounding Site	Reference high-relief spur and groove south of Carysfort Reef SPA, 10-14 feet, near Maitland grounding site, elkhorn coral base, but no live elkhorn coral observed, dominated by algal turf, sea fans, and <i>Porites astreoides</i>
28 - Elbow Reef SPA**	High-relief spur and groove at Elbow Reef SPA, 9-17 feet, E5 mooring, elkhorn corals abundant, damselfish territories abundant, elkhorn coral particularly abundant along edges of coralline spurs, abundant <i>Coralliophila</i> snails
27 - Elbow Reef SPA**	High-relief spur and groove at Elbow Reef SPA, 10-18 feet, E2 mooring, patchy elkhorn corals, damselfish territories common, very high profile spurs, also abundant <i>Coralliophila</i> snails, spur surfaces dominated by algal turf, crustose coralline algae, fire coral, and sea fans
30 - French Reef SPA**	High-relief spur and groove within French Reef SPA, mooring buoy F7, high relief and large colonies of <i>Montastraea faveolata</i> and <i>M. annularis</i> , isolated colonies of elkhorn coral, several <i>Acropora palmata</i> observed along transects, abundant <i>Dictyota</i> algae and sea plumes
29 - French Reef SPA**	High-relief spur and groove within French Reef SPA, mooring buoy F2, very high relief and large colonies of <i>Montastraea faveolata</i> , extensive thickets of elkhorn coral, several <i>Acropora palmata</i> observed along transects, damselfish territories especially prevalent on some of the elkhorn coral colonies
23 - SW of French Reef SPA	Reference high-relief spur and groove southwest of French Reef SPA, just south of SPA buoys, elkhorn coral framework, dominated by crustose coralline algae, sea fans, sea plumes, <i>Palythoa</i> and fire coral, very few scleractinians, water temperature 87°F, no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
357 - Sand Island	Reference high-relief spur and groove at Sand Island, northeast of Molasses Reef SPA, mooring buoy S3 at northern end of reef, excellent visibility, spurs shorter at northern extent of fore reef, fewer scleractinian corals, abundant <i>Millepora complanata</i> , no <i>Acropora</i> at site
356 - Sand Island	Reference high-relief spur and groove at Sand Island, northeast of Molasses Reef SPA, mooring buoy S1 at southern end of reef, excellent visibility, substratum dominated by algal turf, crustose coralline algae and sea plumes, several thickets of <i>Acropora palmata</i> on transects, water temperature 87°F
32 - Molasses Reef SPA**	High-relief spur and groove within Molasses Reef SPA, mooring buoy M6, excellent visibility, site dominated by algal turf, crustose coralline algae, <i>H. opuntia</i> , fire coral, sea plumes, sea fans and <i>Palythoa</i> , high-relief structure, <i>Acropora palmata</i> present on transects
31 - Molasses Reef SPA**	High-relief spur and groove within Molasses Reef SPA, mooring buoy M3, excellent visibility, site dominated by algal turf, crustose coralline algae, <i>H. opuntia</i> , fire coral, sea plumes, sea fans and <i>Palythoa</i> , high-relief structure, <i>Acropora palmata</i> present on transects
19 - Pickles Reef	Reference high-relief spur and groove at Pickles Reef, mooring buoy P5, elkhorn coral framework, dominated by algal turf, <i>H. tuna</i> , sea fans, fire coral and <i>Palythoa</i> , very few scleractinian corals, no <i>Acropora</i> observed at site
20 - Pickles Reef	Reference high-relief spur and groove at Pickles Reef, similar to site 18, elkhorn coral framework, dominated by algal turf, sea fans and fire coral, water temperature 88°F, no <i>Acropora</i> observed at site
18 - Pickles Reef	Reference high-relief spur and groove at Pickles Reef, elkhorn coral base, shoreward side lower profile, dominated by algal turf, <i>Millepora complanata</i> , sea fans and sea plumes, very abundant fire coral, water temperature 87°F, no <i>Acropora</i> observed at site
Middle Florida Keys NMS	
79 - Delta Shoal	Reference high-relief spur and groove at Delta Shoal, east of Sombrero Key SPA, 13-17 feet, near eastern end of reef, elkhorn coral framework, more <i>Dictyota</i> and less <i>Palythoa</i> than site 78, no <i>Acropora</i> observed at site
78 - Delta Shoal	Reference high-relief spur and groove at Delta Shoal, east of Sombrero Key SPA, 11-17 feet, near western end of reef, elkhorn coral framework, dominated by algal turf, <i>Dictyota</i> , <i>Palythoa</i> and sea fans, no <i>Acropora</i> observed at site
84 - Sombrero Key SPA**	High-relief spur and groove within Sombrero Key SPA, near western end of fore reef at mooring buoy 17, 11-20 feet, dominated by algal turf, coralline algae and <i>Palythoa</i> , large <i>A. palmata</i> colonies on transects, bleaching of <i>Millepora</i> and <i>Agaricia</i>
83 - Sombrero Key SPA**	High-relief spur and groove within Sombrero Key SPA, near eastern end of fore reef at mooring buoy 8, 14-22 feet, dominated by <i>Dictyota</i> and <i>Palythoa</i> , no <i>Acropora</i> observed at site, few urchins
Lower Florida Keys NMS	
148 - Looe Key SPA**	High-relief spur and groove at Looe Key SPA, 5-14 feet, near eastern end of reef, good visibility, abundant <i>A. palmata</i> confined to one coralline spur, shallower end of spur dominated by <i>Palythoa</i> and <i>P. astreoides</i> , deeper end with large <i>M. faveolata</i> heads, bleaching of <i>Millepora</i> and <i>Palythoa</i>
147 - Looe Key SPA**	High-relief spur and groove at Looe Key SPA, 11-20 feet, near western end of fore reef, good visibility, mooring buoy L27, dominated by algal turf and <i>Palythoa</i> , <i>A. palmata</i> in transects, <i>A. cervicornis</i> observed at site, pale to bleaching of <i>Palythoa</i> and <i>Agaricia</i>
145 - American Shoal	Reference high-relief spur and groove at American Shoal, 19-25 feet, western end of reef, low profile, dominated by <i>Dictyota</i> algae and <i>Palythoa</i> , no urchins or <i>Acropora</i> observed within transects, pale to bleaching of <i>Palythoa</i> , <i>Millepora</i> and <i>Agaricia</i> corals
146 - American Shoal	Reference high-relief spur and groove at American Shoal, 19-21 feet, near lighthouse, dominated by <i>Dictyota</i> algae, gorgonians, and <i>Palythoa</i> , pale to bleaching of <i>Palythoa</i> , <i>Agaricia</i> , <i>P. astreoides</i> , <i>M. cavernosa</i> , <i>Millepora</i> , and <i>S. siderea</i>
144 - Maryland Shoal	Reference high-relief spur and groove at Maryland Shoal, 4-8 feet, transects placed on back side of reef in old <i>A. palmata</i> zone, dominated by algal turf and crustose coralline algae, abundant <i>Echinometra</i> urchins and some large <i>Diadema</i> , no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
141 - Maryland Shoal	Reference high-relief spur and groove at Maryland Shoal, 10-19 feet, <i>M. annularis</i> heads at base of reef, <i>A. palmata</i> framework shallower, fuzzy substratum with abundant turf algae, no <i>Coralliophila</i> snails, no <i>Acropora</i> observed at site
143 - Maryland Shoal	Reference high-relief spur and groove at Maryland Shoal, 15-20 feet, towards western end of reef, lower profile with fewer upright but dead stands of <i>A. palmata</i> , dominated by <i>Dictyota</i> , abundant small colonies of <i>A. cervicornis</i> along transects
139 - Pelican Shoal	Reference high-relief spur and groove at Pelican Shoal, 8-15 feet, east end of reef, low profile spurs, grades shoreward into lower profile area near back reef, dominated by sea fans and <i>P. astreoides</i> , no <i>Acropora</i> observed at site
138 - No Name Reef	Reference high-relief spur and groove at No Name Reef, 10-20 feet, east of Eastern Sambo RO, east end of reef, relatively small spurs, fissures and cracks common in reef framework, water temperature 87°F, no <i>Acropora</i> observed at site
137 - No Name Reef	Reference high-relief spur and groove at No Name Reef, 11-23 feet, east of Eastern Sambo RO, west end of reef, relatively small spurs, both <i>A. palmata</i> and <i>A. cervicornis</i> present on transects, site dominated by algal turf and <i>Palythoa</i>
150 - Eastern Sambo RO**	High-relief spur and groove at Eastern Sambo Research Only, 5-16 feet, west end of reef, dominated by algal turf, <i>H. opuntia</i> , <i>Palythoa</i> , and <i>P. astreoides</i> , no <i>Acropora</i> observed within transects, water temperature 87-88°F
149 - Eastern Sambo RO**	High-relief spur and groove at Eastern Sambo Research Only, 6-12 feet, east end of reef near stake, transects near CRMP stake #4, no <i>Acropora</i> observed within transects, water temperature 88°F
348 - Middle Sambo Reef	Reference high-relief spur and groove at Middle Sambo Reef, 6-13 feet, east end of reef, no <i>Acropora</i> observed within transects
309 - Middle Sambo Reef	Reference high-relief spur and groove at Middle Sambo Reef, 6-12 feet, west end of reef near stake, bleaching of <i>A. agaricites</i> , water temperature 87°F, <i>A. cervicornis</i> present within transects
152 - Western Sambo ER**	High-relief spur and groove within Western Sambo Ecological Reserve, 9-20 feet, near eastern end of shallow fore reef at mooring buoy #1, dominated by algal turf, <i>Palythoa</i> , and sea fans, few corals and more algae than site 151, fewer snails, no <i>Acropora</i> in survey area
151 - Western Sambo ER**	High-relief spur and groove within Western Sambo Ecological Reserve, 5-9 feet, near eastern end of shallow fore reef at mooring buoy #4, dominated by algal turf, <i>Palythoa</i> , and sea fans, few corals but abundant <i>Coralliophila</i> , no <i>Acropora</i> in survey area
136 - East of Eastern Dry Rocks SPA	Reference high-relief spur and groove east of Eastern Dry Rocks, coralline spurs interspersed with pavement, abundant staghorn corals, elkhorn coral also observed in general survey area
154 - Eastern Dry Rocks SPA**	High-relief spur and groove at Eastern Dry Rocks SPA, near far eastern boundary of SPA, poor visibility, no <i>Acropora</i> observed in general survey area
153 - Eastern Dry Rocks SPA**	High-relief spur and groove at Eastern Dry Rocks SPA, near western end of SPA, poor visibility, no <i>Acropora</i> observed in general survey area
156 - Rock Key SPA**	High-relief spur and groove at Rock Key SPA, eastern end of SPA, good visibility, moderate relief coralline spurs, no <i>Acropora</i> observed in general survey area
155 - Rock Key SPA**	High-relief spur and groove at Rock Key SPA, central area of SPA, good visibility, very high-relief coralline spurs, no <i>Acropora</i> observed in general survey area
325 - Sand Key SPA**	High-relief spur and groove at Sand Key SPA, eastern end of SPA, incredible visibility, staghorn and elkhorn coral observed in general survey area, but not sampled in transects
157 - Sand Key SPA**	High-relief spur and groove at Sand Key SPA, western end of SPA, incredible visibility, elkhorn coral observed in general survey area, but not sampled in transects
<i>Low-relief hard-bottom (6-15 m)</i>	
Upper Florida Keys NMS	
53 - Carysfort Reef SPA**	Low-relief hard-bottom in central-eastern Carysfort Reef SPA, 26-33 feet deep, supposed to be low-relief spur and groove, but no defined sand grooves, broken-up substratum in many locations, algae and gorgonians dominant
240 - Carysfort Reef SPA**	Low-relief hard-bottom in southeastern Carysfort SPA, 22-28 feet, large mound that plateaus to hard-bottom and rubble, <i>Dictyota</i> and gorgonians dominant, small corals and low coverage, slopes down quickly to sand and rubble

Habitat type/site number and location	Site description
57 - Inshore of Watson's Reef	Reference low-relief hard-bottom site near Watson's Reef, 24-30 feet, strong surge, bottom heavily scoured, supposed to be reference patchy hard-bottom, but continuous hard-bottom with low to moderate relief, gorgonians abundant
45 - Offshore of Dry Rocks SPA	Reference low-relief hard-bottom offshore of Dry Rocks SPA, 36-39 feet, broken up bottom, no defined structure, dominated by brown algae, gorgonians and <i>Xestospongia</i> , sponges speciose and abundant
22 - SW of French Reef SPA	Reference deeper (> 6 m) low-relief hard-bottom southwest of French Reef SPA, supposed to be high-relief spur and groove, but relatively low profile drowned <i>Acropora</i> reef, some sand grooves, but very low profile, dominated by <i>Dictyota</i> algae and sea plumes, no <i>Acropora</i> observed at site
21 - SW of French Reef SPA	Reference deeper (> 6 m) low-relief hard-bottom southwest of French Reef SPA, supposed to be high-relief spur and groove, but relatively low profile drowned <i>Acropora</i> reef, dominated by <i>Dictyota</i> algae, sea plumes and <i>Aplysina</i> sponges, <i>Acropora cervicornis</i> observed at site, but not within transects
Middle Florida Keys NMS	
353 - Conch Reef SPA**	Low-relief hard-bottom (> 6 m) within Conch Reef SPA, 34-38 feet, added as second deeper hard-bottom site, offshore of mooring buoy CO1, dominated by <i>Dictyota</i> algae, gorgonians and fire coral, water temperature 88°F, no <i>Acropora</i> observed at site
105 - Conch Reef SPA**	Low-relief hard-bottom (> 6 m) within Conch Reef SPA, 33-37 feet, sandy algal turf substratum, dominated by <i>H. tuna</i> and gorgonians, few corals and mostly small <i>Porites</i> and <i>Siderastrea</i> , water temperature 87°F, no <i>Acropora</i> observed at site
104 - NE of Alligator Light	Reference deeper (> 6 m) low-relief hard-bottom northeast of Alligator Light, 33-36 feet, supposed to be low-relief spur and groove, but continuous and very low-relief hard-bottom, dominated by sandy algal turf and gorgonians, no <i>Acropora</i> observed at site
351 - South of Indian Key	Reference low-relief hard-bottom south of Indian Key, 27-29 feet, replaced site 95 that was dense seagrass patches, low profile and sandy, dominated by fire coral and gorgonians, water temperature 88°F, no <i>Acropora</i> observed at site
101 - South of Lower Matecumbe	Reference deep hard-bottom (> 6 m) south of Lower Matecumbe, 24-27 feet, near red marker R18, supposed to be low-relief spur and groove, but continuous hard-bottom with no sand grooves, low profile, no <i>Acropora</i> observed at site
111 - West of Sombrero Key	Reference low-relief hard-bottom west of Sombrero Key SPA, 25-30 feet, green water, supposed to be patchy hard-bottom, but generally continuous, low profile and eroded, little macroalgae and corals, water temperature 86°F, bleaching of <i>Millepora</i> , <i>Siderastrea</i> and <i>S. intersepta</i>
Lower Florida Keys NMS	
180 - South of Bahia Honda Key	Reference low-relief hard-bottom south of Bahia Honda Key, 28-29 feet, supposed to be patchy hard-bottom, but generally consolidated, low profile, dominated by sandy algal turf, gorgonians, fire coral, <i>I. campana</i> , <i>S. vesparium</i> and <i>X. muta</i> , corals generally small, <i>A. cervicornis</i> present on transects
173 - Maryland Shoal	Reference low-relief hard-bottom at Maryland Shoal, 23-25 feet, supposed to be low-relief spur and groove, but mostly consolidated with no sand grooves, dominated by gorgonians, <i>Dictyota</i> , <i>Sargassum</i> and <i>H. tuna</i> , small corals, no <i>Acropora</i> observed at site, water temperature 87°F
177 - NE of Satan Shoal	Reference low-relief hard-bottom NE of Satan Shoal, 40-45 feet, supposed to be patchy hard-bottom, but more continuous, some pockets of sand, outstanding visibility, dominated by <i>Dictyota</i> and gorgonians, water temperature 84°F, paling of several coral species, including <i>D. stokesi</i> , <i>S. bournoni</i> , <i>S. siderea</i> , <i>E. fastigiata</i> and <i>S. intersepta</i>
Patchy hard-bottom (6-15 m)	
Upper Florida Keys NMS	
56 - Inshore of Watson's Reef	Reference patchy hard-bottom site near Watson's Reef, 21-29 feet, inshore of site 57, some moderate relief inshore, scoured sandy substratum, corals relatively small, gorgonians abundant
44 - Dixie Shoal	Reference patchy low-relief hard-bottom (< 6 m) inshore of Dixie Shoal, supposed to be deeper hard-bottom, but shallower and consisting of rock patches interspersed with sand and <i>Thalassia</i> seagrass, dominated by <i>Dictyota</i> , <i>H. tuna</i> and sea plumes, isolated coral heads, water temperature 88°F, no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
43 - Dixie Shoal	Reference patchy low-relief hard-bottom (> 6 m) at Dixie Shoal, supposed to be deeper hard-bottom, but abundant rubble and sand interspersed with hard-bottom patches, some <i>Thalassia</i> seagrass interspersed, dominated by <i>Sargassum</i> , <i>H. tuna</i> , gorgonians, fire coral, and <i>X. muta</i> , water temperature 87°F, no <i>Acropora</i> observed at site
42 - Dixie Shoal	Reference patchy low-relief hard-bottom (> 6 m) at Dixie Shoal, supposed to be deeper hard-bottom, but abundant rubble and sand interspersed with hard-bottom patches, dominated by <i>Dictyota</i> algae, gorgonians, fire coral, and <i>X. muta</i> , water temperature 87°F, no <i>Acropora</i> observed at site
Middle Florida Keys NMS	
96 - South of Windley Key	Reference patchy hard-bottom south of Windley Key, 23-27 feet, very strange substratum, supposed to be continuous hard-bottom, but looks like eroded offshore patch reef with sand and rubble patches, dominated by large stands of <i>Sargassum</i> , very few corals, no <i>Acropora</i> observed at site
114 - South of Lower Matecumbe	Reference patchy hard-bottom south of Lower Matecumbe, near red marker R18, 26-28 feet, green water, small site with mostly sand, dominated by <i>Sargassum</i> and <i>S. vesparium</i> , small corals, water temperature 86°F, no <i>Acropora</i> observed at site
94 - South of Duck Key	Reference patchy hard-bottom south of Duck Key, 22-25 feet, patches of hard-bottom with seagrass and rubble, dominated by <i>Sargassum</i> , <i>H. tuna</i> , <i>Styopodium</i> and <i>Lobophora</i> , water temperature 85°F, paling or bleaching of <i>Siderastrea</i> , <i>M. meandrites</i> , and <i>P. astreoides</i> , no <i>Acropora</i> observed at site
93 - South of Duck Key	Reference patchy hard-bottom south of Duck Key, 26-29 feet, patches of sand hard-bottom, dominated by <i>Sargassum</i> , <i>Dictyota</i> , <i>H. tuna</i> , <i>Millepora</i> and gorgonians, very old and eroded <i>A. palmata</i> framework, isolated coral heads, no <i>Acropora</i> observed at site
Lower Florida Keys NMS	
338 - South of Bahia Honda Key	Reference patchy hard-bottom south of Bahia Honda Key, 28-30 feet, supposed to be low-relief spur and groove, but mostly rocky interspersed with sand, dominated by gorgonians, no defined structure, water temperature 89°F, paling to bleaching of <i>Agaricia</i>
179 - West of American Shoal	Reference patchy hard-bottom west of American Shoal, 31-33 feet, large mound, moderate relief, abundant <i>S. siderea</i> heads, chunks of low-profile reef interspersed with sand, no <i>Acropora</i> observed at site, pale to bleaching of <i>S. radians</i> and <i>S. intersepta</i>
160 - North of Pelican Shoal	Reference patchy hard-bottom, north of Pelican Shoal, 18-20 feet, supposed to be shallow hard-bottom, but deeper and patchy with large sand patches, dominated by <i>Dictyota</i> algae and gorgonians, water temperature 85°F, no <i>Acropora</i> observed at site
164 - West of Pelican Shoal	Reference patchy hard-bottom west of Pelican Shoal, 24-27 feet, supposed to be hard-bottom, but mixture of low-profile reef and sand, dominated by <i>Dictyota</i> , <i>Halimeda tuna</i> and gorgonians
178 - West of Pelican Shoal	Reference patchy hard-bottom, west of Pelican Shoal, 24-27 feet, dominated by <i>Dictyota</i> algae, gorgonians and <i>X. muta</i> , isolated coral heads, water temperature 85°F, no <i>Acropora</i> observed at site
166 - Eastern Sambo RO**	Patchy hard-bottom within Eastern Sambo Research Only, 17-22 feet, eastern side of no-take zone, more rubble and sand compared to site 332, abundant queen conch, very little coral, <i>A. cervicornis</i> observed on transects
332 - Eastern Sambo RO**	Patchy hard-bottom within Eastern Sambo Research Only, 21-24 feet, western side of no-take zone, supposed to be hard-bottom, but patches interspersed with sand and rubble, dominated by <i>Dictyota</i> algae, abundant queen conch, very little coral, no <i>Acropora</i> observed at site
334 - Western Sambo ER**	Patchy hard-bottom within Western Sambo Ecological Reserve, 24-26 feet, supposed to be hard-bottom, but mixture of hard-bottom, sand, and rubble, eastern edge of reserve, low profile, dominated by <i>Dictyota</i> algae and gorgonians, water temperature 85°F, no <i>Acropora</i> in general survey area
167 - Western Sambo ER**	Patchy hard-bottom within W. Sambo Ecological Reserve, 25-26 feet, supposed to be hard-bottom, but mix of hard-bottom, rubble and sand, dominated by <i>Dictyota</i> algae, gorgonians, <i>X. muta</i> , isolated <i>Acropora cervicornis</i> found within transects
163 - West of Western Sambo ER	Reference patchy hard-bottom west of Western Sambo Ecological Reserve, 32-35 feet, supposed to be hard-bottom, but broken-up reef with sand and rubble, moderate relief dominated by <i>Dictyota</i> algae and isolated heads of <i>C. natans</i> , <i>M. cavernosa</i> and <i>S. siderea</i> , water temperature 87°, no <i>Acropora</i> in survey area

Habitat type/site number and location	Site description
335 - Sand Key SPA**	Patchy hard-bottom inside of Sand Key SPA, 27-35 feet, SW corner of SPA, more consolidated than site 169, brown algae and gorgonians dominant, water temperature 87°F
169 - Sand Key SPA**	Patchy hard-bottom inside of Sand Key SPA, 21-25 feet, northwestern area of SPA, abundant staghorn coral rubble, isolated <i>Montastraea</i> heads, brown algae dominant
162 - West of Western Dry Rocks	Reference patchy hard-bottom site west of Western Dry Rocks, 30-37 feet, inshore of site 57, supposed to be hard-bottom, some moderate relief inshore, scoured sandy substratum, corals relatively small, <i>Dictyota</i> and gorgonians abundant, water temperature 84°F, several coral species pale
<i>Low-relief spur & groove (6-15 m)</i>	
Upper Florida Keys NMS	
52 - Carysfort Reef SPA**	Low-relief spur and groove in central-eastern Carysfort Reef SPA, 30-33 feet deep, very low profile, dominated by turf algae, <i>Dictyota</i> and gorgonians, sandy, some large <i>Xestospongia</i> , sand grooves obvious
241 - Carysfort Reef SPA**	Low-relief spur and groove in southeastern Carysfort SPA, 32-39 feet, some sand grooves, large but dead <i>Montastraea annularis</i> heads, moderate relief with complex substratum, brown algae and gorgonians dominant, some large <i>Xestospongia</i>
51 - Offshore of Dry Rocks SPA	Reference low-relief spur and groove offshore of Dry Rocks SPA, 38-43 feet, similar to site #51, decent visibility, sandy, some sand grooves evident, dominated by <i>Dictyota</i> algae, sea plumes and <i>Xestospongia</i> , moderate relief with small ledges
50 - Offshore of Dry Rocks SPA	Reference low-relief spur and groove offshore of Dry Rocks SPA, 33-38 feet, decent visibility, sandy, some sand grooves evident, dominated by <i>Dictyota</i> algae, sea plumes and <i>Xestospongia</i> , moderate relief with small ledges
49 - Little Pickles Reef	Reference low-relief spur and groove at Little Pickles Reef, poorly defined spur and groove, broken up substratum, dominated by <i>Dictyota</i> algae, gorgonians, and <i>X. muta</i> , water temperature 87°F, no <i>Acropora</i> observed at site
48 - Little Pickles Reef	Reference low-relief spur and groove at Little Pickles Reef, excellent visibility, moderate relief and dominated by <i>Dictyota</i> algae, sea plumes <i>X. muta</i> and <i>Aplysina</i> sponges, water temperature 87°F, no <i>Acropora</i> observed at site
Middle Florida Keys NMS	
355 - NE of Conch Reef	Reference low-relief spur and groove northeast of Conch Reef, 48-53 feet, just northeast of Conch SPA and RO, good visibility, relatively high relief consisting of <i>Montastraea</i> colonies along coralline spurs, dominated by <i>Lobophora</i> algae, <i>Briareum</i> gorgonians, and sea plumes, no <i>Acropora</i> observed at site
282 - Conch Reef SPA**	Low-relief spur and groove within Conch Reef SPA, 40-44 feet, near northeastern corner of SPA, good visibility, low profile spurs, dominated by sandy algal turf, <i>Dictyota</i> , gorgonians and <i>X. muta</i> , corals generally small, spurs 35-40 cm off of sand, no <i>Acropora</i> observed at site
354 - Conch Reef SPA**	Low-relief spur and groove within Conch Reef SPA, 45-49 feet, site added as replicate, similar to site 282, good visibility, water temperature 87°F, no <i>Acropora</i> observed at site
107 - Conch Reef RO**	Low-relief spur and groove within Conch Reef Research Only, 46-51 feet, good visibility, north of Aquarius habitat, dominated by <i>Dictyota</i> algae, gorgonians and <i>X. muta</i> , no <i>Acropora</i> observed at site
106 - Conch Reef RO**	Low-relief spur and groove within Conch Reef Research Only, 43-47 feet, inshore of Aquarius site, similar to site 107, good visibility, dominated by <i>Dictyota</i> algae, gorgonians and <i>X. muta</i> , water temperature 86°F, no <i>Acropora</i> observed at site
276 - Davis Reef SPA**	Low-relief spur and groove within Davis Reef SPA, 31-34 feet, closer to reef marker, good visibility, dominated by sandy algal turf, gorgonians, fire coral, <i>X. muta</i> and <i>S. vesparium</i> , spurs ~15 cm off of the sand, water temperature 85°F, no <i>Acropora</i> observed at site
80 - Davis Reef SPA**	Low-relief spur and groove within Davis Reef SPA, 32-34 feet, southern side of SPA, good visibility, low profile, dominated by sandy algal turf, fire coral, <i>S. vesparium</i> and gorgonians, corals mostly small, little macroalgae, water temperature 85°F, no <i>Acropora</i> observed at site
102 - South of Lower Matecumbe	Reference low-relief spur and groove south of Lower Matecumbe Key, 36-40 feet, moderate relief, green water, dominated by corals, especially <i>M. cavernosa</i> , <i>M. faveolata</i> and <i>S. siderea</i> , <i>Dictyota</i> and <i>H. goreau</i> , water temperature 86°F, colder water on bottom, no <i>Acropora</i> observed at site

Habitat type/site number and location	Site description
109 - Tennessee Reef RO**	Low-relief spur and groove within Tennessee Reef RO, 29-32 feet, near central area of RO, less large corals, cyanobacteria prevalent, no <i>Acropora</i> observed at site
108 - Tennessee Reef RO**	Low-relief spur and groove within Tennessee Reef RO, 31-34 feet, near SW boundary, moderate relief and dominated by brown algae and gorgonians, some large coral heads of <i>M. faveolata</i> , <i>D. strigosa</i> and <i>C. natans</i> , water temperature 89°F, no <i>Acropora</i> observed at site
113 - NE of Tennessee Light	Reference low-relief spur and groove northeast of Tennessee Lighthouse, 25-28 feet, supposed to be patchy hard-bottom, green water, generally good visibility, low-profile spurs with moderate relief, dominated by <i>H. tuna</i> , <i>Udotea</i> , <i>Sargassum</i> , <i>X. muta</i> , water temperature 88°F
349 - South of Conch Key	Reference low-relief spur and groove south of Conch Key, 35-37 feet, good visibility, more dense cover than site 100, dominated by sea plumes and <i>S. vesparium</i> , no <i>Acropora</i> observed at site
100 - South of Conch Key	Reference low-relief spur and groove south of Conch Key, 43-46 feet, good visibility, sandy and dominated by algal turf and gorgonians, corals small, no <i>Acropora</i> observed at site
99 - East of Delta Shoal	Reference low-relief spur and groove east of Delta Shoal, 28-31 feet, green water, low profile, silty, dominated by sandy algal turf and <i>S. vesparium</i> , no <i>Acropora</i> observed at site
110 - Sombrero Key SPA**	Low-relief spur and groove within Sombrero Key SPA, 36-40 feet, near eastern end of SPA, dominated by <i>Dictyota</i> algae and gorgonians, water temperature 88°F, no <i>Acropora</i> observed at site, very few urchins
287 - Sombrero Key SPA**	Low-relief spur and groove within Sombrero Key SPA, 38-41 feet, near western end of SPA, more sparse than site 110, silty and dominated by gorgonians, small corals, no <i>Acropora</i> observed at site, some queen conch observed
Lower Florida Keys NMS	
337 - South of Bahia Honda Key	Reference low-relief spur and groove south of Bahia Honda Key, 35-37 feet, low profile and silty substratum, dominated by gorgonians and fire coral, corals mostly small, abundant coral recruits, paling to bleaching of <i>Siderastrea</i> and <i>S. intersepta</i>
174 - Looe Key SPA**	Low-relief spur and groove within Looe Key SPA, 32-37 feet, similar to site 339, near eastern end of SPA, shallower end of spur more sparse, abundant sea plume recruits, no <i>Acropora</i> observed at site
339 - Looe Key SPA**	Low-relief spur and groove within Looe Key SPA, 32-37 feet, silty, low profile, dominate by algal turf, <i>S. vesparium</i> , fire coral and gorgonians, small corals, water temperature 88°F, paling to bleaching of <i>S. radians</i> , no <i>Acropora</i> observed at site
142 - American Shoal	Reference low-relief spur and groove at American Shoal, 34-37 feet, supposed to be high-relief spur and groove, but deeper and offshore of high-relief spurs, ~14 cm in height, dominated by <i>Dictyota</i> algae and gorgonians, silty appearance, abundant <i>S. vesparium</i> and <i>X. muta</i> sponges, no <i>Acropora</i> observed at site, water temperature 85°F
172 - East of Eastern Sambo RO	Reference low-relief spur and groove east of Eastern Sambo Research Only, 36-39 feet, moderate relief, dominated by <i>Dictyota</i> algae and gorgonians, isolated <i>M. cavernosa</i> heads, <i>A. cervicornis</i> rubble present, no live <i>Acropora</i> observed at site
340 - Eastern Sambo RO**	Low-relief spur and groove at Eastern Sambo Research Only, 27-33 feet, SE end of no-take zone, lower profile than site 175, no <i>Acropora</i> present at site
175 - Eastern Sambo RO**	Low-relief spur and groove at Eastern Sambo Research Only, 27-33 feet, SW end of no-take zone, old staghorn coral rubble present, <i>A. cervicornis</i> present on transects
171 - Middle Sambo Reef	Reference low-relief spur and groove at Middle Sambo Reef, 32-37 feet, old staghorn coral rubble present, dominated by <i>Dictyota</i> , isolated colonies of <i>C. natans</i> and <i>M. faveolata</i> , <i>A. cervicornis</i> present at site
170 - Middle Sambo Reef	Reference low-relief spur and groove at Middle Sambo Reef, 28-34 feet, spurs ~35 cm high, dominated by <i>Dictyota</i> , <i>H. goreauii</i> , and sea plumes, isolated heads of <i>M. faveolata</i> , pillar coral present, no <i>Acropora</i> observed at site
341 - Western Sambo ER**	Low-relief spur and groove within Western Sambo Ecological Reserve, 32-39 feet, second block added to reserve, east of site 176, similar structure, moderate relief, excellent visibility, abundant <i>X. muta</i> , abundant but old staghorn coral rubble, dominated by <i>Dictyota</i> , <i>Lobophora</i> , and gorgonians, no <i>Acropora</i> observed
176 - Western Sambo ER**	Low-relief spur and groove in SW corner of Western Sambo Ecological Reserve, 28-38 feet, moderate relief, excellent visibility, abundant <i>X. muta</i> and heads of <i>M. faveolata</i> , dominated by <i>Dictyota</i> algae and gorgonians, no <i>Acropora</i> observed