

LIST OF FIGURES

Figure No.	Name	Page No.
1	Symbiotic behavior of corals	3
2	Reef generation history	6
3	Fringing Reef	11
4	Barrier reef	12
5	Atolls	13
6	World Reef distribution	15
7	Coral reef distribution in India	17
8	Remote sensing and Coral reef	28
9	Spatial- Temporal Resolutions for different satellites	29
10	Selected study sites in Gulf of Kachchh	48
11	False Colour Composite Image of Poshitra	49
12	False Colour Composite Image of Narara	50
13	Conceptual paradigm for study context	51
14	PVC frame for random sampling	52
15	In-Situ Data Collection and use of CoralWatch Coral Health Chart	53
16	Sampling points from the site 1	53
17	Sampling points from the site 2	54
18	CoralWatch Coral Health Chart	55
19	Extraction of Area of Interest	58
20	Clipped False colour composition Image	58
21	Reflectance calculation in Band Maths tool	63

22	Extraction of reflectance value through SNAP software	65
23	Land-Use classification of Narara	69
24	Land-Use classification of Poshitra	70
25	(a) <i>Favites melicerum</i> (Ehrenberg, 1834), (b) <i>Porites compressa</i> Dana, 1846, (c) <i>Porites lutea</i> Milne Edwards & Haime, 1851, (d) <i>Porites lichen</i> (Dana, 1846), (e) <i>Goniopora djiboutiensis</i> Vaughan, 1907, (f) <i>Dipsastraea favus</i> (Forskål, 1775)	81
26	(a) <i>Goniopora columna</i> Dana, 1846, (b) <i>Goniopora lobata</i> Milne Edwards, 1860, (c) <i>Goniopora pendulus</i> Veron, 1985, (d) <i>Goniopora pedunculata</i> Quoy & Gaimard, 1833, (e) <i>Hydnophora exesa</i> (Pallas, 1766), (f) <i>Goniastrea pectinate</i> (Ehrenberg, 1834)	82
27	(a) <i>Dendronephthya</i> Kükenthal, 1905, (b) <i>Homophyllia bowerbanki</i> (Milne Edwards & Haime, 1857), (c) <i>Favites halicora</i> (Ehrenberg, 1834), (d) <i>Favites pentagona</i> (Esper, 1790), (e) <i>Favites flexuosa</i> (Dana, 1846), (f) <i>Bernardpora stutchburyi</i> (Wells, 1955)	83
28	(a) <i>Turbinaria reniformis</i> Bernard, 1896, (b) <i>Porites harrisoni</i> Veron, 2000, (c) <i>Pseudosiderastrea tayamai</i> Yabe & Sugiyama, 1935, (d) <i>Leptastrea purpurea</i> (Dana, 1846), (e) <i>Plesiastrea versipora</i> (Lamarck, 1816), (f) <i>Platygyra pini</i> Chevalier, 1975	84
29	(a) <i>Cyphastrea serailia</i> (Forskål, 1775), (b) <i>Dipsastraea speciosa</i> (Dana, 1846), (c) <i>Favites complanata</i> (Ehrenberg, 1834), (d) <i>Lobophyllia radians</i> (Milne Edwards & Haime, 1849), (e) <i>Siderastrea savignyana</i> Milne Edwards & Haime, 1849, (f) <i>Turbinaria mesenterina</i> (Lamarck, 1816)	85
30	(a) <i>Lobophyllia hataii</i> Yabe, Sugiyama & Eguchi, 1936, (b) <i>Porites hawaiiensis</i> Vaughan, 1907, (c) <i>Duncanopsammia peltata</i> (Esper, 1790), (d) <i>Montipora explanate</i> Brüggemann, 1879, (e) <i>Favites chinensis</i> (Verrill, 1866), (f) <i>Platygyra sinensis</i> (Milne Edwards & Haime, 1849)	86
31	(a) <i>Montipora monasteriata</i> (Forskål, 1775), (b) <i>Goniopora planulata</i> (Forskål, 1775), (c) <i>Favites flexuosa</i> (Dana, 1846), (d) <i>Lobophytum pauciflorum</i> (Ehrenberg, 1834)	87
32	Spectral Signature of Different Coral Classes	93

33	Large scale sedimentation and Blooming effect	94
34	Bleaching effect	95
35	Spectral Signature of Reef Classes	96
36	Model generated bleaching (%)	100
37	Salinity comparison of summer year 2021	104
38	Salinity comparison of winter year 2019	105
39	Salinity comparison of summer year 2019	105
40	Salinity comparison of summer year 2020	106
41	Salinity comparison of summer year 2020	106
42	Salinity comparison of winter year 2021	107
43	Normalized Difference Turbidity Index of Gulf of Kachchh January 2019	108
44	Normalized Difference Turbidity Index of Gulf of Kachchh June 2019	108
45	Normalized Difference Turbidity Index of Gulf of Kachchh January 2020	109
46	Normalized Difference Turbidity Index of Gulf of Kachchh March 2020	109
47	Normalized Difference Turbidity Index of Gulf of Kachchh January 2021	110
48	Normalized Difference Turbidity Index of Gulf of Kachchh June 2021	110
49	Five-year anomalies of temperature	113
50	Five-year anomalies of Photosynthetically Available Radiance	114
51	Five-year anomalies of kd490.	115
52	Five-year anomalies of Total Suspended Matter.	116