Appendix List

Tabel 1. Marina national park data related ecosystem and management status

Name	Estbled	Updated	Total area (ha)	MG area (ha)	WL area (ha)	CR area (ha)	SG area (ha)	Mngmnt Effectiveness
Anambas National MPA	2011	2025	1.262.686,2	766,2	850-860 (estimation)	3,706.0	89.63*	Collaboration work with LKKPN Pekanbaru sebagai pengelola
Bangka Regional MPAs	2013	2020	7.372,5	12.120	10.470	2,348.0	350	Low efektive 44,64% (evika)
Belitung Regional MPA (P Memporang)	2011	2017	124.320,7	19.395		1842,9	10.131	39,42% low effective (evika)
Karimata Regional MPA	2004	2014	77.000 (2004) 210.000 (2014)	1034		1,041.0	326	Belum ada pengukuran efektivita di kemenhut
Senayang Lingga Regional MPA	2002		419.134,75	58		4,735.0	260	Belum diukur dengan EVIKA
Barelang & Bintan Regional MPA	2007	2022	66.867	1.880		6,145.0	2.094	Belum diukurn efektyivitanya
Natuna Regional MPA	2007	2007	142.977	5.017		4,774.0	1060	Belum diukur
Batam/Abang Island Regional MPA	2007	2007	64,735	60		44,539	-	Belum dievaluasi
Lingga seagrass sanctuaries	2019	2025	17.500	-	-	-	462.0	Belum dievaluasi
Sembilang National Park	2003		202.896,31	88.586	267,592.0	-	-	Belum dievaluasi evika

Bintan 1 Conservation Area	2024		138.561,42				1,500	Belum di evaluasi
Bintan 3 Conservation Area	2024						257	Belum dievaluasi
Batu Ampar Protected Forest	2014		65,585	33,235	33.140			Beluam di evaluasi

*) Source: PPID LKKPN Pekanbaru, 2025.

Table 2. Total Mangrove Coverage in Indonesia based on data from various resources

Country/Area (Sites characterized by the SCS Project)										
Indonesia	2003 (ha)	2008 (ha)	2013 (ha)	2017 (ha)	2018 (ha)	2021 (ha)	2002 (ha)	2023 (ha)	2024 (ha)	2025 (ha)
Total of Mangrove Coverage	216209.29	130,501	118,674	195,000	79,229	913,443.7	341,109.8	467,464.83	529,066.54	67,417
Bangka Belitung	0	22,457	0	0	0	275,299.7	273,692.81	273,692.80	61,832.44	0
Kep Riau	0	0	0	0	79,229	67,417	67,417	0	67,417	67,417
Sumatera Selatan	115,072.29	0	118,674	195,000	0	171,629	0	97,332.03	167,050.13	0
Jambi	0	0	0	0	0	12,236	0	0	11,515.55	0
Riau	0	42,459	0	0	0	224,895	0	0	230,000	0
West Kalimantan	101,137	65,585	0	0	0	161,967	0	96,440	158,302	0

Table 3. Total Mangrove Coverage in Indonesia based on data from various resources

Country/Area (Sites characterized by the SCS Project)										
Indonesia	2003 (ha)	2008 (ha)	2013 (ha)	2017 (ha)	2018 (ha)	2021 (ha)	2022 (ha)	2023 (ha)	2024 (ha)	2025 (ha)
Province										
Bangka Belitung	0	22,457	0	0	0	275,299.75	0.00	273,692.80	61832.439	0
1. Bangka	0	0	0	0	0	38,957.14	0	0	0	0
2. Bangka Barat	0	0	0	0	0	48,529.43	0	0	0	0
3.Bangka Selatan	0	0	0	0	0	58,165.04	0	0	0	0
4.Bangka Tengah	0	0	0	0	0	19,151	0	0	0	0
5. Belitung	0	22,457	0	0	0	67,265.00	0	273,692.80	61,832.44	0
6.Belitung Timur	0	0	0	0	0	43,232	0	0	0	0
Kep Riau	0	0	0	0	79,229	67,417	67,417	0	67,417	67,417
1.Tanjung Pinang	0	0	0	0	2,009	0	0	0	0	0
2. Batam	0	0	0	0	20,698	0	0	0	0	0
3. Bintan	0	0	0	0	8,327	0	0	0	0	0
4. Lingga	0	0	0	0	16,480	0	0	0	0	0
5. Karimun	0	0	0	0	14,875	0	0	0	0	0
6. Natuna	0	0	0	0	16,480	0	0	0	0	0
7. Anambas	0	0	0	0	359	0	0	0	0	0
Sumatera Selatan	115,072.29	0	118,674	195,000	0	171,629	0	97,332.03	167.050.134	0
Jambi	0	0	0	0	0	12,236	0	0	11,515.55	0
Riau	0	42,459	0	0	0	224,895	0	0	230,000	0
1. Bengkalis	0	42,459	0	0	0	0	0	0	0	0
West Kalimantan	101,137	65,585	0	0	0	161,967	0	96,440	158,302	0
1. Kubu Raya	101,137	0	0	0	0	0	0	96,440	0	0
2. Batu Ampar	0	65,585	0	0	0	161,967	0	0	0	0

Table 4. The Coverage of Wetland (Sites characterized by the SCS Project) in Indonesia (Sumatra and Kalimantan) based on various resources (by provinces)

Country/Area (Sites characterized by the SCS Project)		
Indonesia	2023 (ha)	2024 (ha)
Banka Belitung	150,000	45,145.90
Riau Island	57,000	8,277,846
South Sumatera	855,000.00	1,234,966.45
Jambi	682,000	608,910
Riau	768,000	222,538.10
West Kalimantan		1,430,813

Table 5. Site level Risk Assessment of Seagrass and Coral Reef Ecosystems in the Western South China Sea. Qualitative categories retained as provided (High, Medium, Low–Medium, Low). Quantitative equivalence for reviewers: High = 3; Medium = 2; Low = 1. Scores represent relative pressure or vulnerability across stressor categories and sites.

No	Location	Overfishing	Illegal fishing	Sedimentation	Eutrophication	Uncontrol tourism	Landfills	Habitat loss	Community change	LC/SG cover decline
1	Anambas	Medium	Present (domestic/destructive fishing historically)	Local (port/settlement) – Low/Med	Localized near villages	Rising risk (island-hopping growth)	Spot trash issues	Turtle nesting & reef pressure sites	Tourism & gear-shift in fishing	LC: variable; reef monitoring & elasmobranch survey sites
2	Bangka	Medium	Present (blast/cyanide historically)	High (tin mining on/offshore -> turbidity)	Estuaries near towns	Growing coastal tourism	Local dumps & marine debris	Mangrove/reef damage from mining	Livelihood shift mining↔fishing	SG impacted near sea-based tin mining
3	Belitung	Medium	Present (historical)	High (river/nearshore from mining/land-use)	Ports & settlements	Medium (island-hopping sites)	Local waste issues	Reef/shoreline alteration	Tourism expansion	Reef condition East Belitung sites
4	Karimata	Low–Medium	Present (small-scale)	Local (near villages/boat traffic)	Low	Low (access-limited)	Low	Sensitive reefs & turtle sites; boat traffic	Small island out-migration	LC Pelapis: site-specific (2023–2024 study)
5	Senayang Lingga	Medium	Present (small-scale destructive gear)	Medium (near river mouths)	Localized nutrients	Rising (Benan, etc.)	Local waste leakage	Seagrass/reef pressure	Tourism-based livelihood shift	—
6	Barelang dan Bintan	Medium	Present (small-scale)	Medium (coastal development)	Medium–High (urban wastewater & oil incidents)	High (resorts/mass tourism)	Urban waste issues	Coastal habitat conversion & oiling	Rapid coastal development	Bintan: oil spill governance; tourism sewage risk (regional refs)
7	Natuna	Medium	High (foreign IUU focus)	Low–Medium (localized)	Low	Low	Low	Fishing ground pressure; seagrass/reef intact offshore	Fisheries-dominated economy	—
8	Batam/Abang Island	Medium	Present	Medium (urban + boat traffic)	Medium (sewage to rivers/bays)	High (snorkeling/diving)	Urban landfill & leakage	Reef trampling/anchor damage	Tourism-driven change	LC Abang: 38.8–84.9% (station range)
9	Bintan	Medium	Present	Medium (coastal dev.)	Medium (resort wastewater); oil sludge cases	High (Lagoi etc.)	Tourism/urban waste	Mangrove/reef conversion in pockets	Service economy growth	—

10	Medang-Mesanak (Lingga)	Medium	Present (small-scale)	Medium (nearshore)	Low	Low–Medium	Local dumping	Reef pressure	Demographic change small isles	—
11	Temiang (Lingga)	Medium	Present	Medium	Low	Low–Medium	Local dumping	Reef pressure	Tourism village shift	—
12	Mapor	Medium	Present	Low–Medium	Low	Emerging	Local dumping	Reef pressure	Potential tourism shift	—
13	Senayang	Medium	Present	Medium	Low–Medium	Medium	Local dumping	Reef/Seagrass stress	Tourism gateway shift	—