

**Table 2 - Coastal Protection Factors**  
Source: developed by the Institute of Marine Affairs (IMA)

Factor	Level Of Coastal Protection					None 0
	Very High 4	High 3	Medium 2	Low 1		
Coastal Geomorphology	Rocky, Cliffed Coastline	Soft (Limestone) Cliffs or Low Bluffs	Mangroves	Beaches	N/A	
Coastal Geology	Igneous and/or Volcanic	Metamorphic	Sedimentary	Unconsolidated Sediments	N/A	
Coastal Protection Structures	Protected by 2 prominent headlands and breakwater	Protected by 2 prominent headlands	Seawalls, Riprap or Breakwaters	Protected by one or two small headlands	No protection by headlands	
Wave Energy (~ Max. Wave Height [cm])	< 20	20 – 40	40 – 60	>60	N/A	
Coral Reef Index (sum of 3 factors / 10 *4)	Barrier Not applicable (N/A) < 250	Patch N/A 250 - 500	Fringe Continuous 500 - 1000	Apron Discontinuous > 1000	No reef present No reef present No reef present	
Storm/Hurricane Events	Affected by 1-5 Tropical Storms every 10 years	Affected by at least 5 Trop. Storms every 10 years	Affected by at least a Category 1 every 25 years	Affected by at least a Category 3 every 25 years	N/A	
Coastal Elevation (m)	> 12	5 – 12	1 – 5	0 – 1	< 0 (N/A) **	
Coastal Slope (%)	6.2 – 9.7	2.6 – 6.2	1.1 – 2.6	0.4 – 1.1	N/A	
Coastal Vegetation Index (average of 2 factors) Type Distribution	Mangroves > 75 % length of coastline	Coastal Woodlands 50% - 75 % of length	Thicket 25% - 50 % of length	Runners < 25% length of coastline	None No Vegetation	
Coastal Anthropogenic Activities	No sand mining, coastal development, etc.	Misc. Other Activities	Either sand mining or coastal development	Sand mining and coastal development	N/A	

Table 2 Summary of average global value of annual ecosystem services

Biome	Area (ha × 10 <sup>6</sup> )	Ecosystem services (1994 US\$ ha <sup>-1</sup> yr <sup>-1</sup> )																	Total value per ha (\$ha <sup>-1</sup> yr <sup>-1</sup> )	Total global flow value (\$yr <sup>-1</sup> × 10 <sup>5</sup> )															
		1 Gas regulation	2 Climate regulation	3 Disturbance regulation	4 Water regulation	5 Water supply	6 Erosion control	7 Soil formation	8 Nutrient cycling	9 Waste treatment	10 Pollination	11 Biological control	12 Habitat/ refugia	13 Food production	14 Raw materials	15 Genetic resources	16 Recreation	17 Cultural																	
Marine	36,302																			577	20,949														
Open ocean	33,200	38						118			5										76	282	8,381												
Coastal	3,102			88				3,677			38										8	93	4	62	4,052	12,568									
Estuaries	180																						25	2	29	22,832	4,110								
Seagrass/ algae beds	200																						2		2	19,004	3,801								
Coral reefs	62																						27	2	1	3,008	375								
Shelf	2,660																						68	2	2	6,075	1,610	4,283							
Terrestrial	15,323																										804	12,319							
Forest	4,855		141	2		2																							969	4,706					
Tropical	1,900		223	5		6																							112	2,007	3,813				
Temperate/boreal	2,955		88			0																								36	302	894			
Grass/rangelands	3,898		7	0		3																								2	232	906			
Wetlands	330		133			15																								574	881	14,795	4,879		
Tidal marsh/ mangroves	165																														162	658	9,980	1,648	
Swamps/ floodplains	165		265																												491	1,761	19,580	3,231	
Lakes/rivers	200																														230	8,498	1,700		
Desert	1,825																																		
Tundra	743																																		
Ice/rock	1,640																																		
Cropland	1,400																																		
Urban	332																																		
Total	51,625	1,341	684	1,779	115	1,682	576	53	17,075	2,277	117	417	124	1,386	721	79	815	3,015																	

Numbers in the body of the table are in \$ha<sup>-1</sup> yr<sup>-1</sup>. Row and column totals are in \$yr<sup>-1</sup> × 10<sup>5</sup>. Column totals are the sum of the products of the per ha services in the table and the area of each biome, not the sum of the per ha services themselves. Shaded cells indicate services that do not occur or are known to be negligible. Open cells indicate lack of available information.