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"Coastal erosion – Evaluation of the need for action"
Directorate General Environment
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Living with coastal erosion in Europe: Sediment and Space for Sustainability

PART II – Maps and statistics

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National Institute for Coastal and Marine Management of the Netherlands (RIKZ)
EUCC – The Coastal Union
IGN France International
Autonomous University of Barcelona (UAB)
French Geological Survey (BRGM)
French Institute of Environment (IFEN)
EADS Systems & Defence Electronics

INTRODUCTION

This document aims at providing a wide variety of maps and tables based on the EUROSION database. More information regarding the technical description of the database and its various layers is available on the complementary report – PART II Quick Start to the EUROSION database. Readers and potential data users interested in more in-depth information should refer to the database technical documentation and metadata.

EUROSION Atlas is part of the contract no. B4-3301/2001/329175/MAR/B3 awarded by the European Commission to the National Institute for Coastal and Marine Management of the Netherlands (RIKZ), and is developed in partnership with IGN France International, EADS Systems & Defence Electronics, the French Geological Survey (BRGM), the Autonomous University of Barcelona, the French Institute of Environment, and EUCC-The Coastal Union.

The document contains the following elements:

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- Table 2. Extent of coastal erosion per coastal type
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EXPLANATORY NOTES

Note 1 : EUROSION builds upon a former assessment conducted in the period 1986-1989 within the framework of CORINE programme (CORINE Coastal Erosion). CORINE Coastal Erosion aimed at an inventory of European coastal types, their level of protection against coastal erosion and their evolutionary trends. As part of its objectives, EUROSION updated the database developed in the framework of CORINE Coastal Erosion and extended this database with new layers. In turn, this database acts as the basis for documenting EUROSION policy recommendations. The maps and tables presented here are derived from EUROSION database as screenshots.

Note 2 The following maps and tables are related to the enlarged European Union coastline, i.e. the coastline of European Union (EU) member states including those countries which will join EU in 2004. Calculation of coast lengths reported here are derived from a cartography at scale 1:100,000 of all continental and insular coasts with the following exclusions:

- Islands with area less than 1 km2 and population less than 50 inhabitants,
- Inland shores of estuaries, rias, fjords, bays and coastal lagoons where the mouth is less than an width of 1 km
- Overseas territories other than ultra-peripheral regions (Azores, Madeira, Canary Island, French Guyana, Guadeloupe, Martinique and Reunion)
- The Turkish part of Cyprus

As a consequence of these restrictions, the length of national coastline may differ from official figures.

Note 3: For matter of convenience and to support EUROSION policy recommendations, the following coastal types have been considered:

- Hard rock coasts include coasts and/or cliffs made of little erodible rocks (e.g. granite) with possible presence of rock platform or pocket beaches less than 200 metre long.

- Soft rock coasts includes conglomerates and/or cliffs made of erodible rocks (e.g. chalk) and characterized by the presence of rock waste and sediments (sand or pebbles) on the strand

- Beaches includes stretches of coastline made of non-cohesive sediments (sand, gravel, pebbles) more than 200 metre long with possible presence of straight rocky capes (less than 200 metre long), beach rocks or rocky platform on the intertidal strand, and dunes behind the backshore. It includes both natural beaches or man-made beaches

- Muddy coasts includes strands of muddy (cohesive) sediments such mudflats, inter-tidal marshes.

- Artificial coasts includes seawalls, dykes, quays, embankments, harbour infrastructure, man-made protective rocky strands, without sand strands.

Table 1. Inventory of coastal types per country

	Total length of the coastline (in km)	*Hard rock coast (% of total coastline)*	*Soft rock coast (% of total coastline)*	*Beaches (% of total coastline)*	*Muddy coast (% of total coastline)*	*Artificial coast (% of total coastline)*	*Other** (% of total coastline)*
Belgium	98	0	0	66	0	34	0
Cyprus*	66	9	0	67	0	20	4
Denmark	4605	1	8	65	13	12	1
Estonia	2548	0	6	90	4	1	0
Finland	14018	57	0	38	4	1	0
France	8245	25	15	31	13	15	1
Germany	3524	0	5	64	13	18	0
Greece	13780	39	11	47	0	4	0
Ireland	4578	56	1	39	1	3	1
Italy	7468	15	28	50	0	8	0
Latvia	534	0	0	95	2	3	1
Lithuania	263	0	3	65	19	12	0
Malta	173	78	10	5	0	7	1
Poland	634	0	0	83	14	3	0
Portugal	1187	29	22	44	0	5	1
Slovenia	46	0	53	30	0	18	0
Spain	6584	18	43	28	2	10	0
Sweden	13567	56	0	38	5	1	0
The Netherlands	1276	0	0	35	4	60	1
United Kingdom	17381	42	18	25	9	5	1
Others (Bulgaria, Romania)	*350*						
TOTAL	**100925**	**35.4%**	**11.7%**	**40.7%**	**5.3%**	**6.4%**	**0.5%**

** only 20% of Cyprus is reported here*
*** other: estuaries (virtual lines)*

Table 2. Extent of coastal erosion per coastal type

Coastal types	*Number of kilometres of coastline (2001)*	*% of coastline*
	Km	
Hard rock cliffs	35727	35,4
eroding	*1801*	
protected	*167*	
protected but still eroding	*14*	
Soft rock cliffs	11833	11,7
eroding	*3620*	
protected	*974*	
protected but still eroding	*376*	
Beaches	41065	40,7
eroding	*8996*	
protected	*5130*	
protected but still eroding	*2318*	
Muddy coast	5399	5,3
eroding	*694*	
protected	*1335*	
protected but still eroding	*219*	
Artificial coast	6497	6,4
eroding	*0*	
protected	*0*	
protected but still eroding	*0*	
Estuary closure (virtual line)	405	0,5
GRAND TOTAL	**100925**	**100**
TOTAL ERODING	*15111*	*15,0*
TOTAL PROTECTED	*7606*	*7,5*
TOTAL PROTECTED BUT ERODING	*2927*	*2,9*

Table 3. Extent of coastal erosion per country

Country	*Total length of the coastline (in km)*	*Eroding coastline in 2001[*] (in km)*	*Artificially protected coastline in 2001 (in km)*	*Eroding coastline in spite of protection 2001 (in km)*	*Total coastline impacted by coastal erosion (in km)*
Belgium	98	25	46	18	53
Cyprus	66	25	0	0	25
Denmark	4605	607	201	92	716
Estonia	2548	51	*9*	0	60
Finland	14018	5	*7*	0	12
France	8245	2055	*1360*	612	2803
Germany	3524	452	772	147	1077
Greece	13780	3945	579	156	4368
Ireland	4578	912	349	273	988
Italy	7468	1704	1.083	438	2349
Latvia	534	175	30	4	201
Lithuania	263	64	0	0	64
Malta	173	7	0	0	7
Poland	634	349	138	134	353
Portugal	1187	338	72	61	349
Slovenia	46	14	38	14	38
Spain	6584	757	214	147	824
Sweden	13567	327	85	80	332
The Netherlands	1276	134	146	50	230
United Kingdom	17381	3009	2.373	677	4705
Others (Bulgaria, Romania)	*350*	*156*	*44*	22	178
TOTAL	**100925**	**15111**	**7546**	***2925***	***19732***

[*] Both protected and not protected

Table 4. Coastal urbanisation in Europe

Country	*Area of the 10-km-coastal buffer zone* (in km2)*	*Urbanized area in the coastal buffer zone in 1990 (in km2)*	*Urbanized area in the coastal buffer zone in1990 (in %)*	*Urbanized area in the coastal buffer zone in 1975 (in %)*	*Growth rate of urbanized areas 1975-1990 (in %)*
Belgium	990	183	18.5	151	21.8
Cyprus					
Denmark	28504	2042	7.2	1935	5.5
Estonia	9699	349	3.6	308	13.4
Finland					
France	37774	3180	8.4	2781	14.4
Germany	17849	980	5.5	903	8.5
Greece	40655	808	2	864	-6.5
Ireland	21478	471	2.2	425	10.8
Italy	47871	3525	7.4	2802	25.8
Latvia	4852	206	4.2	198	4.4
Lithuania	1626	85	5.2	65	30.7
Malta					
Poland	6170	326	5.3	293	11.3
Portugal	11136	682	6.1	647	5.4
Slovenia	253	19	7.5	12	52.6
Spain	28250	1781	6.3	1527	16.6
Sweden					
The Netherlands	8277	628	7.6	611	2.9
United Kingdom					
Northern Ireland	3137	273	8.7	256	6.6
Others					
Bulgaria,	3021	226	7.5	221	2.3
Romania	3968	207	5.2	177	17.5

** Terrestrial areas lying within 10 km from the coastline*

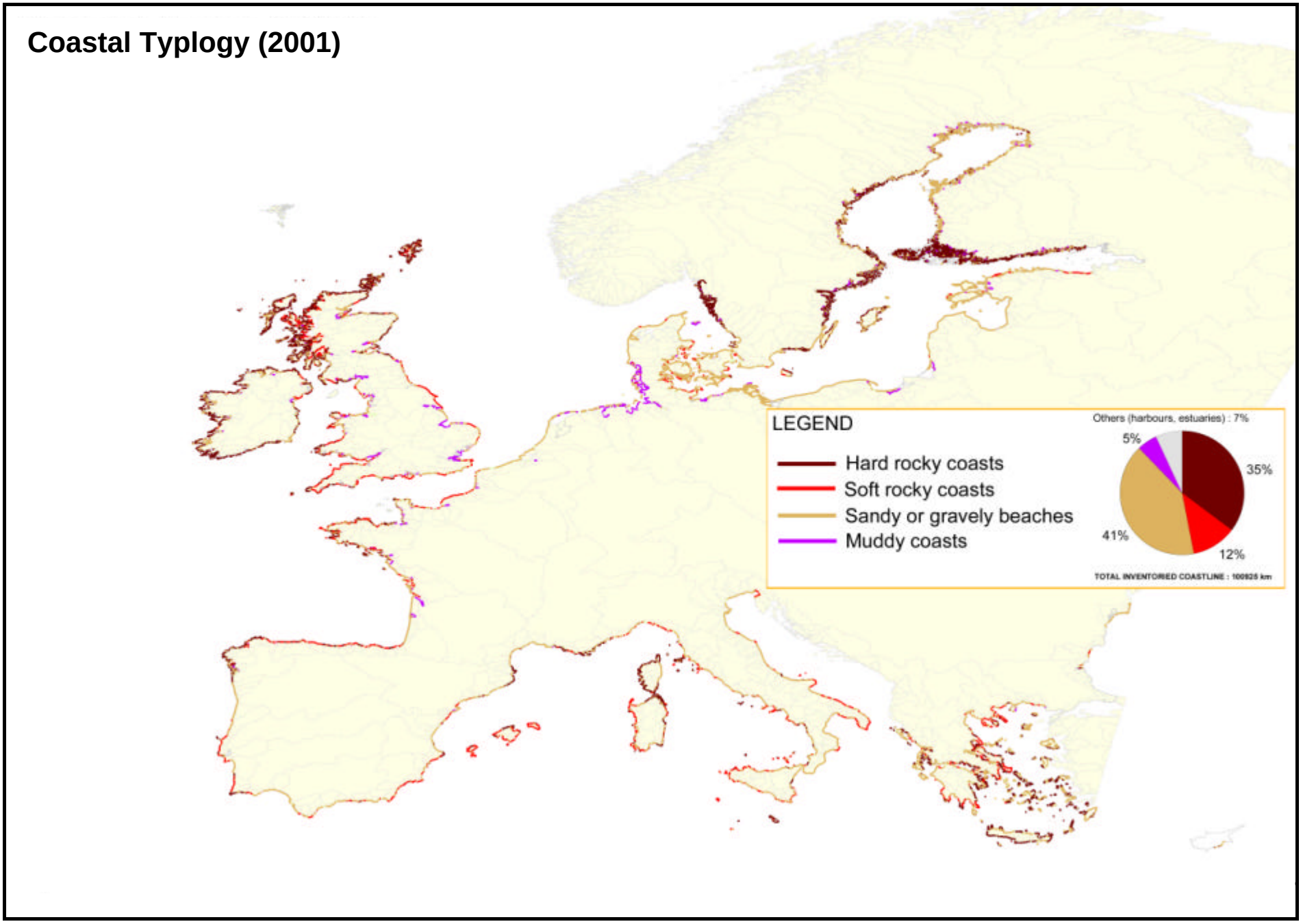
Table 5. Contribution of European rivers to coastal sediment budget (2000)

River basin name	*Outlet sea*	*Catchment area (in km2)*	*Annual sediment yield in 2000 (in tons per km2)*	*Annual sediment discharge in 2000 (in tons)*
Danube	Black sea	799169	82.8	66171781
Dnepr	Black sea	351585	4.5	1596155
Ladoga	Baltic sea	286553	2.9	828928
Wista	Baltic sea	193346	12.6	2428608
Rhine	North sea	163896	16.8	2757617
Elbe	North sea	140308	4.5	635749
Oder	Baltic sea	117843	1.2	136074
Loire	Atlantic sea	116724	15.3	1785631
Douro	Atlantic sea	97473	240.1	23398859
Rhône	Mediterranean sea	97310	44.2	4297971
Neman	Baltic sea	92346	2.3	212924
Zap. Dvina	Baltic sea	86024	5.3	457589
Ebro	Mediterranean sea	85424	213.2	18210441
Garonne	Atlantic sea	80528	24.8	1997071
Seine	Channel	74268	9.7	720417
Dnestr	Black sea	72904	34.5	2514800
Po	Mediterranean sea	72158	216.0	15587533
Tejo	Atlantic sea	70926	254.3	18034242
Guadiana	Atlantic sea	66880	141.0	9431769
Guadalaqui	Atlantic sea	57190	144.7	8277814
Narva	Baltic sea	56809	9.9	561078
Evros	Mediterranean sea	52770	157.4	8303828
Pivdennyy	Black sea	52602	-	-
Onega	Arctic sea	51219	5.4	274438
Kemijoki	Baltic sea	51047	3.1	155721
Severnaya	Arctic sea	49009	-	-
G÷ta	Baltic sea	48334	2.8	133980
Weser	North sea	45130	11.4	512852
Kem	Arctic sea	43736	1.7	72828
Glomma	North sea	41378	369.4	15286606
Torne älv	Baltic sea	39706	2.7	105592
Kymijoki	Baltic sea	36615	4.0	146877
Maas	North sea	33308	11.6	386204
Angerman	Baltic sea	31497	4.3	135137
Dalälven	Baltic sea	28931	4.7	136032
Ozero Vygo	Arctic sea	27539	-	-
Tuloma	Arctic sea	27146	-	-
Ulme	Baltic sea	26798	-	-
Kokemäenjo	Baltic sea	26728	2.4	63541
Indalsälve	Baltic sea	25513	4.9	126188
Lule älv	Baltic sea	24989	5.7	141402
Axios	Mediterranean sea	24496	191.9	4700981
Oulujoki	Baltic sea	22877	3.0	69623
Mälaren ca	Baltic sea	22579	-	-
Jucar	Mediterranean sea	22084	59.2	1306869
Pasvikely	Arctic sea	21126	2.3	47969

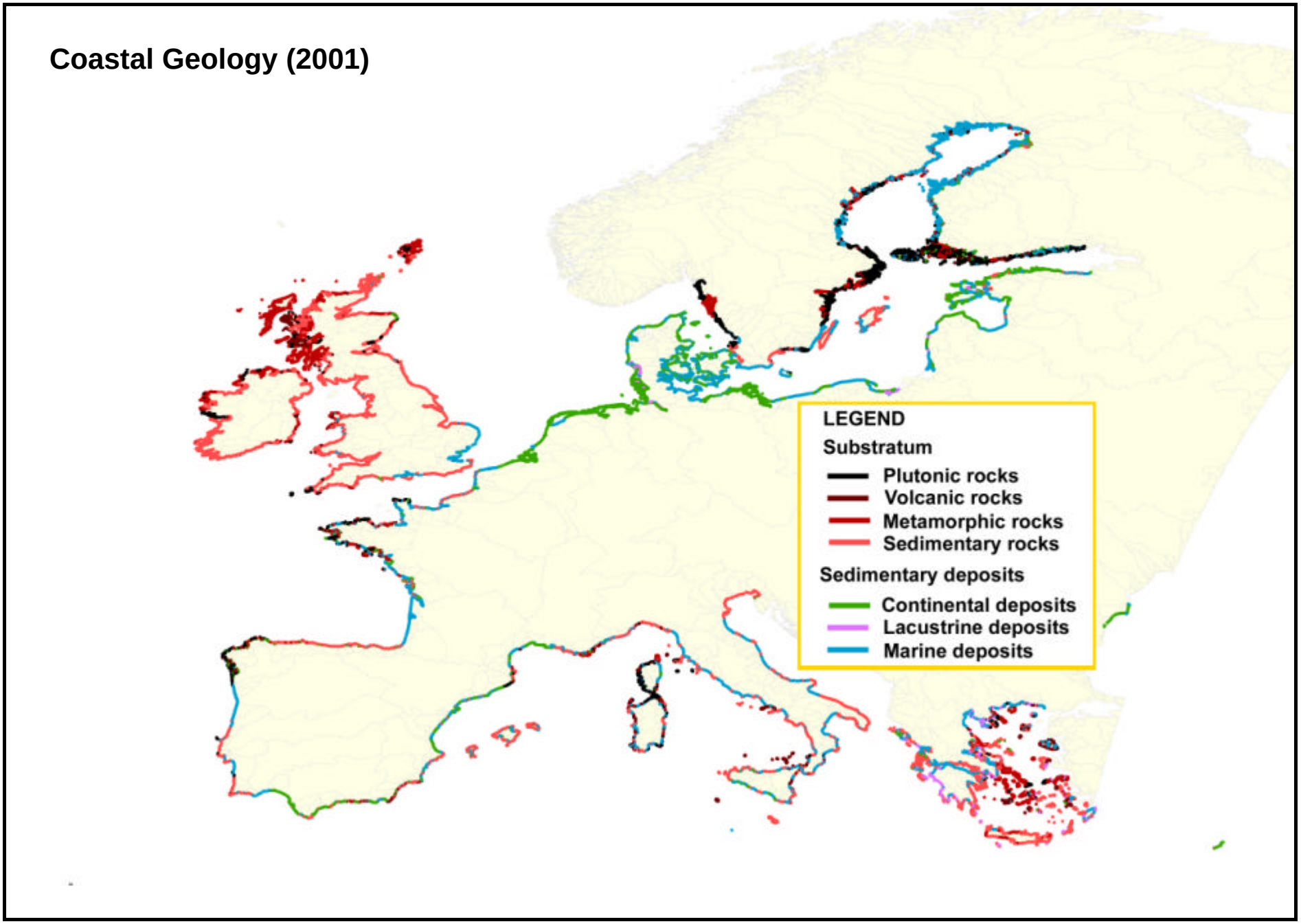
continuation

River basin name	*Outlet sea*	*Catchment area (in km2)*	*Annual sediment yield in 2000 (in tons per km2)*	*Annual sediment discharge in 2000 (in tons)*
Ljusnan	Baltic sea	19796	-	-
Mezen, par	Arctic sea	19367	-	-
Schelde	North sea	19123	17.5	335182
Bojana	Mediterranean sea	18673	3259.8	60871115
Ijssel	North sea	17992	-	-
Tevere	Mediterranean sea	17942	452.2	8113262
Lielupe	Baltic sea	17901	-	-
Kalix älv	Baltic sea	17719	-	-
Minho	Atlantic sea	17043	-	-
Adour	Atlantic sea	16978	47.4	804055
Strimonas	Mediterranean sea	16885	235.4	3974259
Begna	North sea	16829	107.1	1802220
Tana	Arctic sea	16211	-	-
Shannon	Atlantic sea	15979	3.2	50570
Lake Vatte	Baltic sea	15580	-	-
Kuloy	Arctic sea	15444	-	-
Ponoy	Arctic sea	15269	-	-
Segura	Mediterranean sea	15057	71.6	1078728
Pregolya	Baltic sea	14781	-	-
Iijoki	Baltic sea	14297	3.4	48585
Adige	Mediterranean sea	14070	594.5	8364402
Ozero Iman	Arctic sea	13394	-	-
Luga	Baltic sea	13353	-	-
Ljungan	Baltic sea	13086	2.9	38448
Neretva	Mediterranean sea	12429	1092.8	13582752
Varzuga	Arctic sea	12078	-	-
Ems	North sea	11864	3.9	46861
Skelleftea	Baltic sea	11607	3.0	34864
Venta	Baltic sea	11601	-	-
Tumcha	Arctic sea	11486	-	-
Pitealven	Baltic sea	11235	3.9	43853
Aliakmonas	Mediterranean sea	11160	426.2	4756561
Ouse	North sea	10942	-	-
Pinios	Mediterranean sea	10915	-	-
Tinne	North sea	10720	143.9	1542734
Thames	North sea	10527	4.2	44685
Severen	Atlantic sea	10517	-	-
Trent	North sea	10311	7.6	78616
Vilaine	Atlantic sea	10098	7.4	74757
Voronja	Arctic sea	10067	-	-
Charente	Atlantic sea	9873	25.5	251505

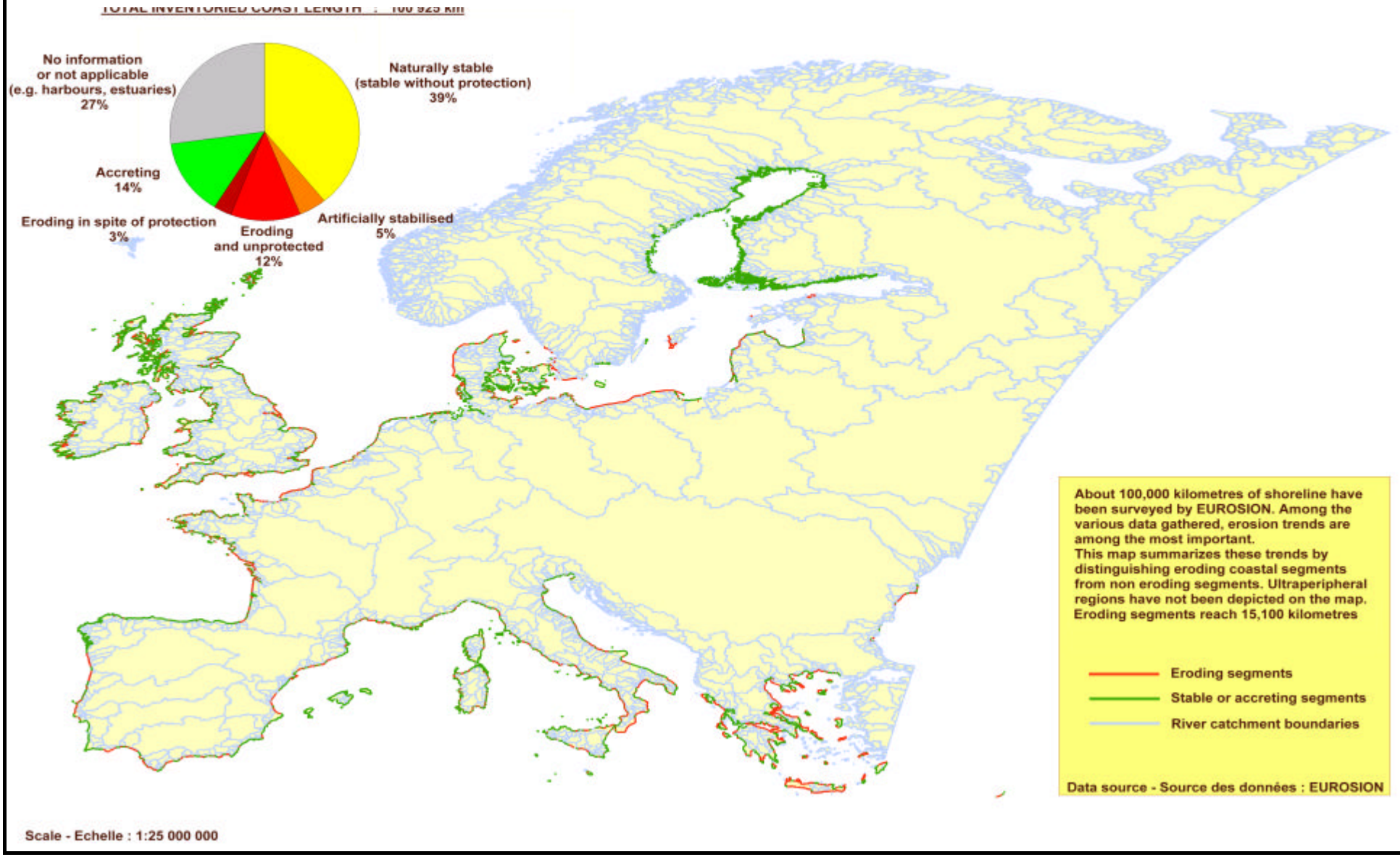
Coastal Typology (2001)



Coastal Geology (2001)

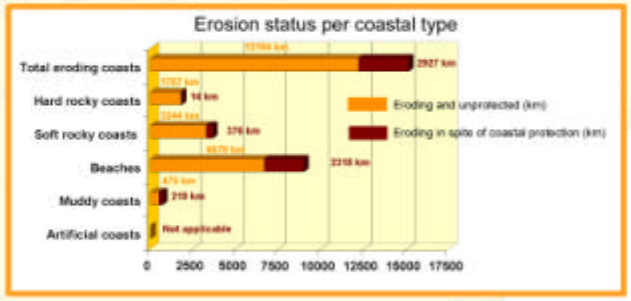


Coastal erosion trends in the European Union



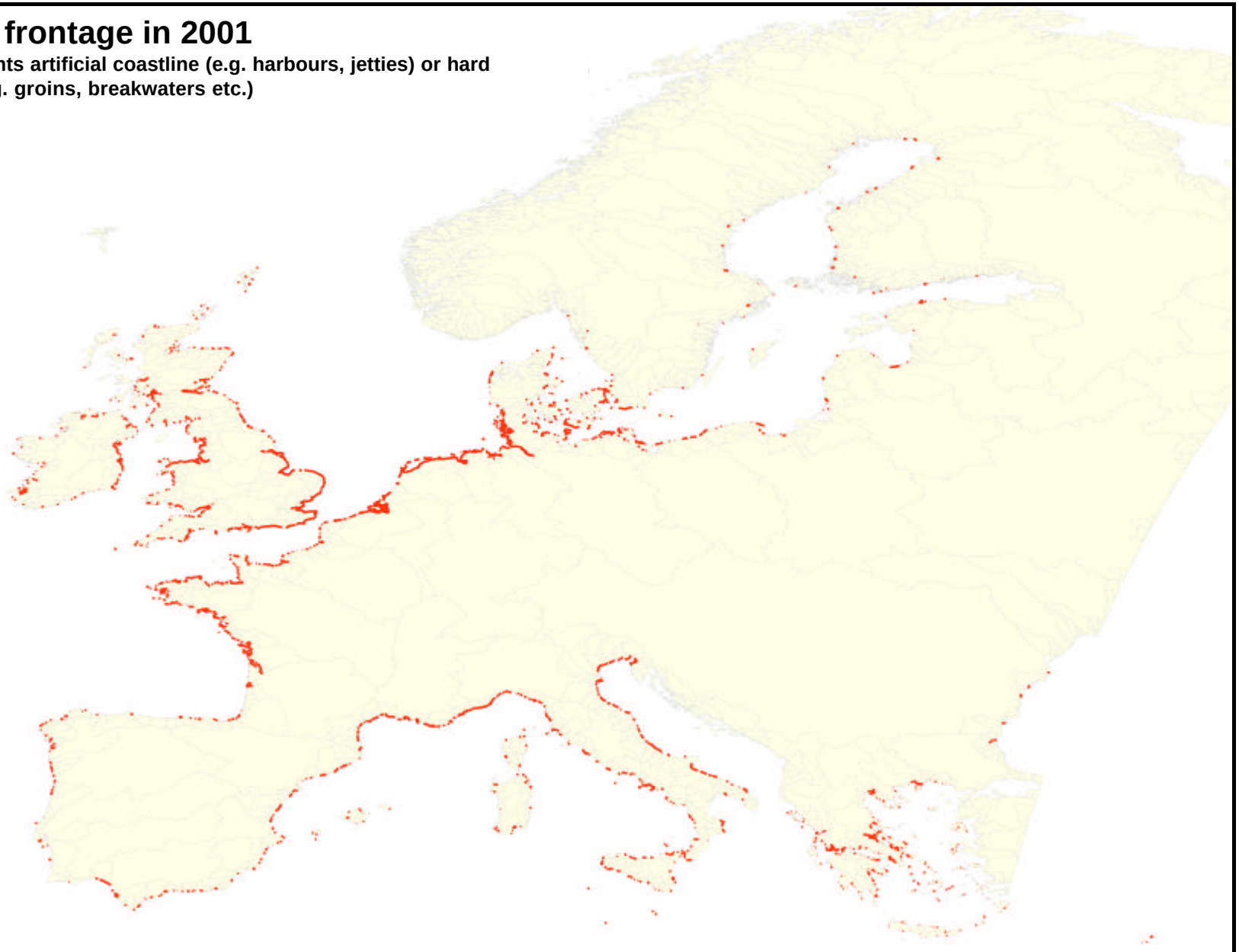
Coastal erosion despite coastal protection (2001)

Red spots depict areas which are eroding though protected

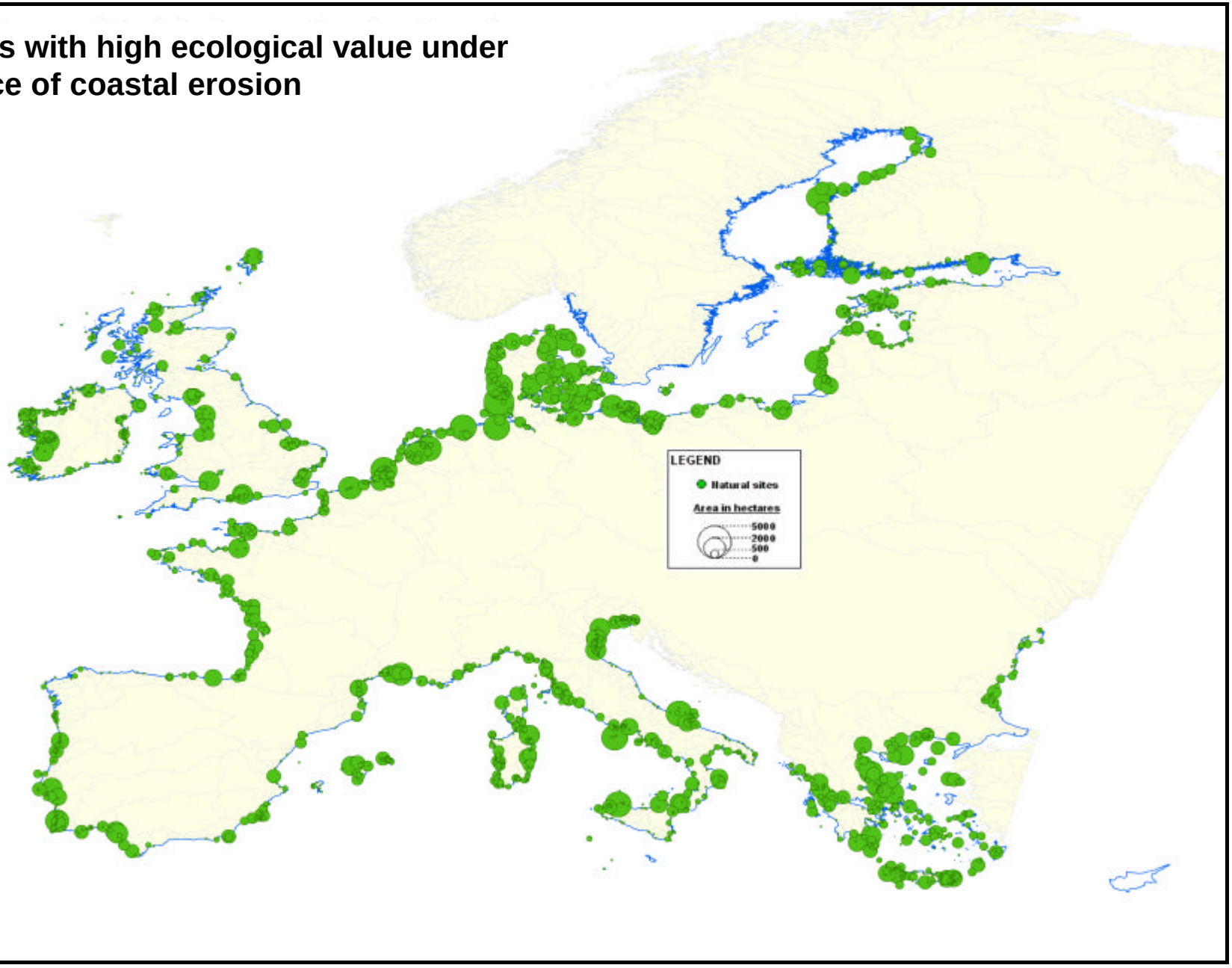


Engineered frontage in 2001

Red spots represents artificial coastline (e.g. harbours, jetties) or hard defence works (e.g. groins, breakwaters etc.)

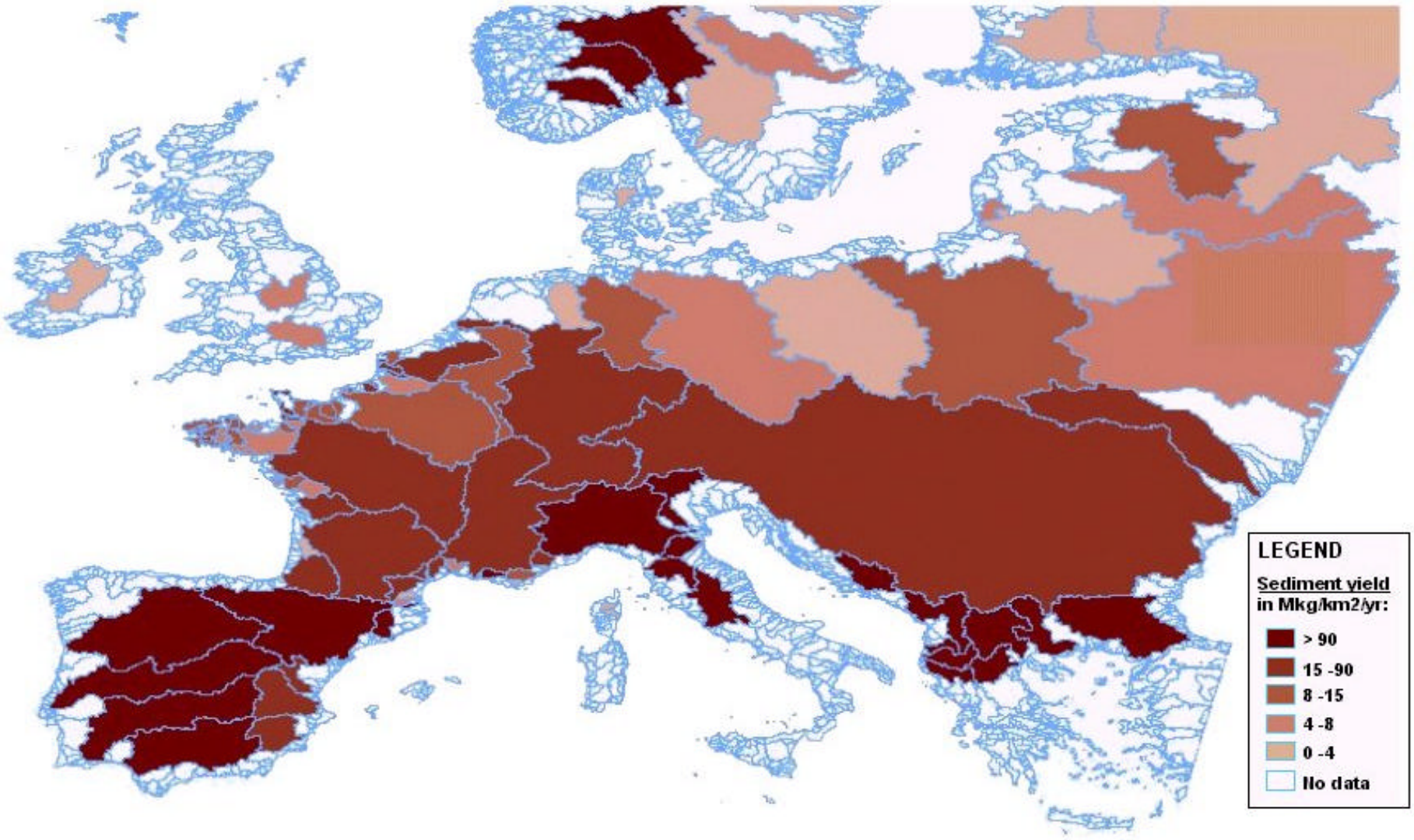


Natural sites with high ecological value under the influence of coastal erosion

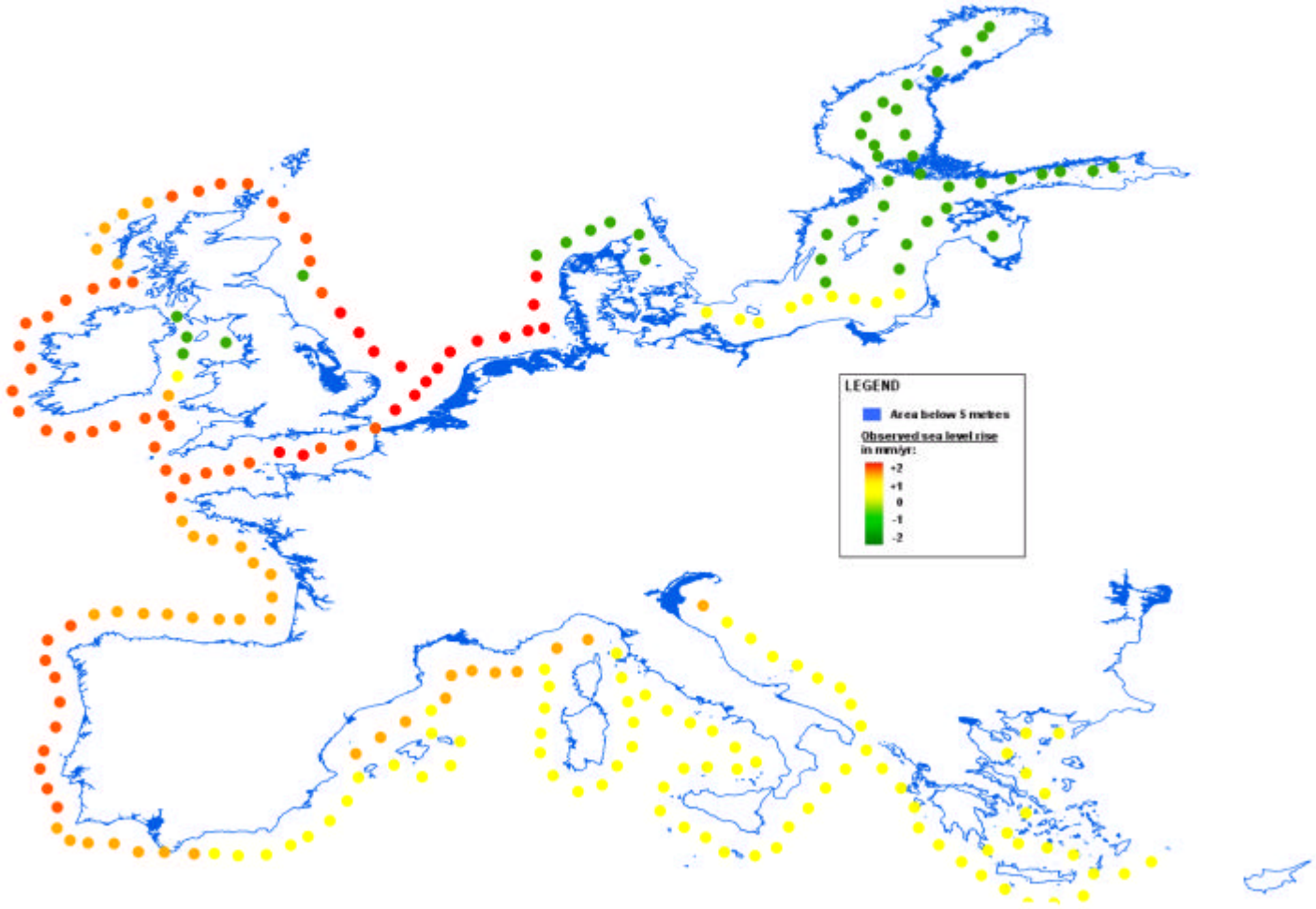


Contribution of River basins to sediment budget (2001)

NB: Only river basins which drainage area exceeds 10,000 km2 have been considered



Exposure to sea level rise (2001)



Exposure of European regions to coastal erosion

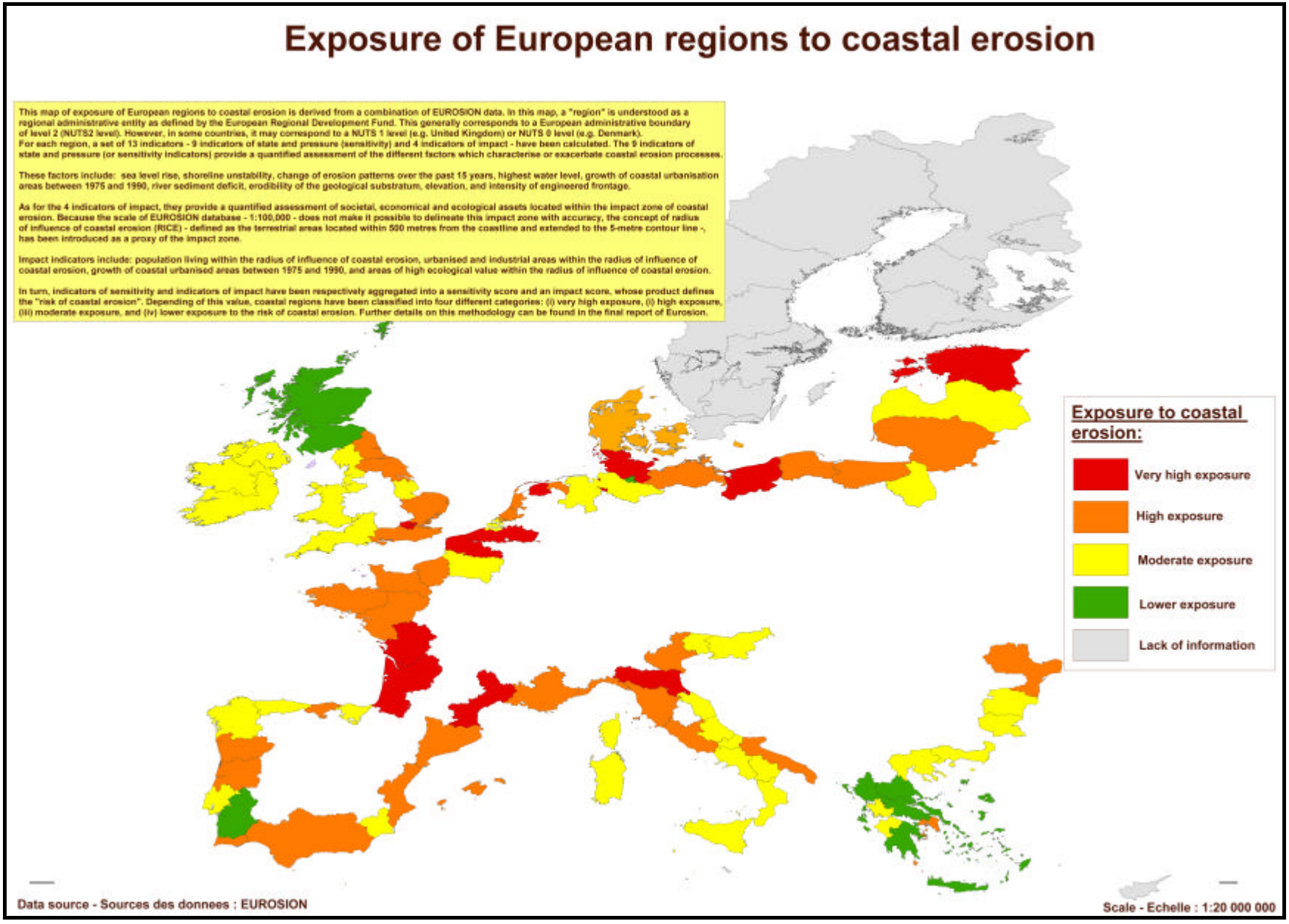


TABLE 4. EXPOSURE OF EUROPEAN COASTAL REGIONS TO COASTAL EROSION

NB: This list of regional indicators aims at providing input for the rating of European coastal regions as recommended in Part I – Major findings and policy recommendations (EUROSION final report). As for the methodology used to calculate these indicators, see table 5.

COUNTRY CODE	REGION CODE	REGION Name	REGION Coast length (km)	Total area (km2)	Area under the influence of coastal erosion - RICE* (km2)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)
BE	BE2	Vlaams Gewest	97,7	13.552	4.354,0	25	10	86	2.222.990	1.174,4	193,00
BG	BG03	Varna	63,1	19.777	135,3	10	-	15	-	15,4	63,67
	BG06	Burgas	61,4	14.476	65,5	7	-	23	-	29,3	56,69
CY	CY	Kypros / Kibris	66,7	9.338	384,6	25	-	19	-	-	0,00
DE	DE5	Bremen	13,5	397	289,0	0	0	12	410.908	138,1	65,50
	DE6	Hamburg	23,8	747	12,3	0	0	21	19.276	3,3	3,31
	DE8	Mecklenburg-Vorpommern	1.570,3	23.040	2.174,8	129	-	280	-	170,4	1245,79
	DE9	Niedersachsen	697,9	30.519	6.429,2	78	4	327	943.220	376,1	1108,81
	DEF	Schleswig-Holstein	1.218,8	15.750	2.751,8	245	31	717	460.290	154,5	4,89
DK	DK00	Danmark	4.605,5	42.970	13.297,6	607	0	691	2.062.474	1.101,1	4283,48
EE	EE	Eesti	2.548,0	45.179	3.299,6	51	-	36	-	81,5	1057,84
ES	ES11	Galicia	1.277,3	29.675	678,9	18	0	129	599.872	106,9	404,47
	ES12	Prinicipado de Asturias	348,6	10.607	170,0	2	0	28	173.341	33,5	131,01
	ES13	Cantabria	213,8	5.326	189,3	7	0	20	218.824	40,8	69,22
	ES21	Pais Vasco	201,9	7.159	163,1	2	0	42	499.725	51,8	40,93
	ES51	Cataluña	578,7	32.147	776,6	192	0	152	990.816	123,3	217,65
	ES52	Comunidad Valenciana	496,8	23.304	948,8	130	0	143	750.744	135,4	414,83
	ES53	Islas Baleares	1.038,9	4.992	480,0	3	0	51	232.280	88,7	439,99
	ES61	Andalucia	872,3	87.786	3.065,2	356	0	221	967.421	189,6	1235,78
	ES62	Region de Murcia	175,3	11.338	263,8	27	0	21	108.972	37,1	125,18
	ES70*	Canarias - Tenerife	1.371,0	2.042	120,2	20	0	92	143.456	22,1	81,79
FI	FI4	Oulu / Uleåborg	730,2	45.294	-	2	0	25	-	-	-
	FI5	Lappi / Lappland	276,5	134.275	-	0	0	23	-	-	-
	FI1	Etelä-Suomi / Södra Finland	3.106,1	9.485	-	3	0	30	-	-	-
	FI2	Länsi-Suomi / Västra Finland	7.829,6	57.234	-	1	0	69	-	-	-
	FI6	Ahvenanmaan maakunta / Landskapet Åland	2.075,6	1.461	-	0	0	5	-	-	-
FR	FR22	Picardie	75,1	19.433	305,3	26	2	40	37.087	20,2	108,75
	FR23	Haute-Normandie	225,4	12.306	558,1	113	2	88	335.891	123,0	181,18
	FR25	Basse-Normandie	568,5	17.762	1.049,7	154	22	231	232.885	105,5	466,56
	FR30	Nord-Pas-de-Calais	155,4	12.309	1.079,6	91	4	72	457.035	205,9	73,34
	FR51	Pays de la Loire	507,7	32.316	2.921,7	149	18	247	490.560	283,1	1633,87
	FR52	Bretagne	2.220,0	27.699	1.574,9	512	195	708	494.557	273,2	1017,76

COUNTRY CODE	REGION CODE	REGION Name	REGION Coast length (km)	Total area (km2)	Area under the influence of coastal erosion - RICE* (km2)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)
	FR53	Poitou-Charentes	445,7	25.995	1.719,1	154	184	301	219.546	120,2	1081,39
	FR61	Aquitaine	527,3	41.819	2.153,7	199	20	165	418.706	241,1	725,24
	FR81	Languedoc-Roussillon	325,1	27.908	1.775,4	76	16	184	417.520	109,5	821,28
	FR82	Provence-Alpes-Côte-d'Azur	1.035,1	31.542	1.791,3	174	55	439	1.624.691	261,8	552,33
	FR83	Corse	1.041,8	8.835	368,7	75	65	49	85.159	42,0	246,17
	FR91	Guadeloupe	557,7	1.657	-	77	-	32	-	-	-
	FR93	Guyane	556,5	84.618	-	255	-	21	-	-	-
GR	GR11	Anatoliki Makedonia, Thraki	436,0	14.203	872,1	139	105	64	61.840	17,0	464,16
	GR12	Kentriki Makedonia	821,8	18.861	1.936,1	371	250	84	419.077	73,1	385,81
	GR14	Thessalia	697,3	14.067	337,1	256	165	54	30.779	6,8	281,64
	GR21	Ipeiros	313,5	9.164	351,4	106	137	37	40.643	6,7	226,24
	GR22	Ionia Nisia	1.065,9	2.304	382,4	260	0	37	81.519	9,0	355,34
	GR23	Dytiki Ellada	859,3	11.304	745,8	198	147	201	136.508	18,4	329,42
	GR24	Sterea Ellada	1.491,8	15.510	750,7	582	362	313	80.989	19,0	225,40
	GR25	Peloponnisos	1.164,1	15.540	592,8	306	192	93	101.031	19,4	172,48
	GR30	Attiki	1.047,9	3.819	412,2	237	144	124	307.473	80,2	94,68
	GR41	Voreio Aigaio	1.311,3	3.854	567,4	231	-	38	-	0,0	348,53
	GR42	Notio Aigaio	3.423,2	5.329	1.382,6	503	-	88	-	0,3	929,10
	GR43	Kriti	1.148,3	8.365	506,9	756	-	31	-	16,4	354,86
IE	IE01	Border, Midland and Western	2.268,4	33.200	984,0	354	84	135	95.288	26,4	1025,31
	IE02	Southern and Eastern	2.308,3	36.794	1.170,1	558	90	340	190.622	79,9	957,48
IT	ITC3	Liguria	357,5	5.419	154,9	55	12	209	243.686	39,2	126,40
	ITD3	Veneto	196,5	18.416	4.830,8	20	3	108	1.286.758	340,0	774,72
	ITD4	Friuli-Venezia Giulia	116,9	7.850	899,3	7	0	79	265.254	86,2	201,06
	ITD5	Emilia-Romagna	169,3	22.153	2.802,5	28	2	80	548.980	140,3	537,68
	ITE1	Toscana	584,5	22.997	1.558,1	80	29	112	947.828	227,1	330,11
	ITE3	Marche	185,8	9.708	114,1	54	1	75	189.464	56,7	25,90
	ITE4	Lazio	351,5	17.252	941,3	122	8	102	802.022	140,5	175,87
	ITF1	Abruzzo	139,3	10.829	84,9	66	0	86	159.409	34,5	7,52
	ITF2	Molise	31,3	4.431	34,0	28	0	8	15.345	2,9	21,20
	ITF3	Campania	459,9	13.638	776,2	105	14	149	913.052	100,6	182,46
	ITF4	Puglia	836,8	19.358	1.047,0	208	36	157	566.718	148,3	485,75
	ITF5	Basilicata	70,5	10.003	32,8	36	0	1	1.596	0,2	21,75
	ITF6	Calabria	699,4	15.116	499,0	415	10	156	412.235	97,8	80,26
	ITG1	Sicilia	1.531,6	25.788	899,4	218	34	320	891.033	251,4	315,73
	ITG2	Sardegna	1.737,3	24.167	1.322,7	262	35	127	381.414	175,8	843,60
LT	LT	Lietuva	262,6	64.852	610,3	64	-	35	-	59,3	751,62
LV	LV	Latvija	534,0	64.265	1.957,0	175	-	48	-	196,7	1110,94

COUNTRY CODE	REGION CODE	REGION Name	REGION Coast length (km)	Total area (km2)	Area under the influence of coastal erosion - RICE* (km2)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)
MT	MT	Region Malta	172,9	317	66,0	7	-	12	-	-	0,00
NL	NL11	Groningen	156,6	2.391	2.375,7	0	0	116	546.045	153,6	134,99
	NL12	Friesland	223,5	3.523	3.523,0	35	39	224	600.551	136,3	569,98
	NL32	Noord-Holland	209,3	2.829	2.813,5	52	0	149	2.384.509	510,8	423,77
	NL33	Zuid-Holland	116,1	3.262	3.262,3	23	7	81	3.244.157	684,7	445,37
	NL34	Zeeland	462,9	1.922	1.891,2	24	0	458	348.962	132,3	402,96
PL	PL0B	Pomorskie	407,0	18.139	2.418,6	190	-	81	-	216,8	279,38
	PL0E	Warminsko-Mazurskie	53,1	23.975	454,7	6	-	9	-	11,9	415,18
	PL0G	Zachodniopomorskie	174,4	22.399	1.365,6	153	-	79	-	90,2	2021,08
PT	PT11	Norte	142,6	21.231	148,7	91	9	60	136.197	25,1	72,64
	PT12	Centro	150,4	23.557	704,1	78	50	25	132.954	23,0	377,23
	PT13	Lisboa e Vale do Tejo	321,6	12.023	782,4	109	0	34	829.264	62,4	485,00
	PT14	Alentejo	125,9	26.829	354,3	0	0	8	20.808	12,5	299,37
	PT15	Algarve	231,1	4.994	315,0	60	0	4	204.166	31,8	295,16
	PT20*	Azores - Sao Miguel	175,2	747	68,0	0	0	3	-	-	1,07
	PT30	Madeira	40,4	810	0,0	0	0	1	-	-	0,00
RO	RO02	Romania	226,0	35.179	7.198,5	140	-	31	-	239,7	6217,81
SE	SE01	Stockholm	2.588,5	6.665	-	0	0	22	-	-	-
	SE02	Östra Mellansverige	1.548,8	41.124	-	0	0	4	-	-	-
	SE04	Sydsverige	1.047,3	14.342	-	149	0	129	-	-	-
	SE06	Norra Mellansverige	702,0	69.247	-	0	0	18	-	-	-
	SE07	Mellersta Norrland	1.079,2	76.871	-	0	0	9	-	-	-
	SE08	Övre Norrland	2.726,7	164.355	-	0	0	5	-	-	-
	SE09	Smaland med öarna	2.108,8	35.379	-	141	0	4	-	-	-
	SE0A	Vastsverige	1.765,9	30.841	-	37	0	16	-	-	-
SI	SI	Slovenija	45,7	20.005	13,9	14	-	46	-	6,3	0,00
UK	UKC	North East	296,7	8.582	217,0	80	21	111	410.516	148,3	77,48
	UKD	North West	658,9	12.862	1.020,7	122	52	329	718.592	230,5	393,50
	UKE	Yorkshire & the Humber	361,2	11.830	1.860,8	203	17	156	484.206	171,2	76,72
	UKF	East Midlands	234,4	5.915	2.818,9	21	0	234	380.946	162,7	101,90
	UKH	East of England	554,5	16.222	3.714,4	168	28	382	855.138	299,6	478,30
	UKI	London	0,0	1.577	249,9	-	-	-	1.163.127	209,7	1,78
	UKJ	South East	787,9	13.326	1.249,1	244	127	429	1.095.277	301,0	322,28
	UKK	South West	1.379,3	23.890	1.293,3	437	159	306	657.363	219,3	417,82
	UKL	Wales	1.498,0	20.764	886,3	346	186	415	553.255	197,1	1454,52
	UKM	Scotland	11.154,3	79.002	6.336,3	1298	292	733	458.908	271,3	1312,69
	UKN	Northern Ireland	455,9	13.740	267,4	89	0	90	127.524	60,2	159,65

TABLE 5. EXPOSURE OF EUROPEAN COASTAL REGIONS TO COASTAL EROSION: REGIONAL WEIGHT FACTORS AND SCORINGS

REGION CODE	REGION Name	REGION Total area (km2)	REGION Total population (inhab.)	sea level rise (range*)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Highest water level (range**)	urbanisation rate 1975-1990 within 10 km	Likely non-erodable coast length (km)	Area under the influence of coastal erosion - RICE* (km2)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanisation rate 1975-1990 OR Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)	SENSITIVITY SCORE	IMPACT SCORE	FINAL SCORE*	EXPOSURE	Reliability
BE2	Vlaams Gewest	13.552	3.300.000	2	1	1	2	2	2	2	2	2	2	0	16	4	63	Very High	2
BG03	Varna	19.777	-	0	1	-	1	0	2	0	2	-	1	2	8	5	35	Medium	1
BG06	Burgas	14.476	-	0	1	-	1	0	1	0	1	-	2	2	5	6	31	Medium	1
CY	Kypros / Kibris	9.338	-	1	1	-	1	-	2	0	1	-	-	0	9	-			0
DE5	Bremen	397	1.498.306	2	0	0	2	2	2	2	2	2	2	1	14	5	68	Very High	2
DE6	Hamburg	747	1.668.757	2	0	0	2	1	2	0	2	0	1	1	10	2	20	Low	2
DE8	Mecklenburg-Vorpommern	23.040	-	0	1	-	1	1	2	1	2	-	1	2	10	5	46	High	1
DE9	Niedersachsen	30.519	7.645.183	1	0	0	2	1	1	2	1	2	1	1	9	4	36	Medium	2
DEF	Schleswig-Holstein	15.750	2.702.728	2	1	0	2	1	2	2	1	2	1	2	12	5	62	Very High	2
DK00	Danmark	42.970	7.209.267	2	0	0	2	1	2	2	0	2	1	2	10	5	51	High	2
EE	Eesti	45.179	-	0	2	-	1	2	2	1	0	-	2	2	10	6	62	Very High	1
ES11	Galicia	29.675	2.732.164	2	0	0	1	2	0	0	0	2	2	2	6	6	34	Medium	2
ES12	Prinicipado de Asturias	10.607	1.094.259	1	0	0	1	2	0	0	2	1	2	2	7	5	34	Medium	2
ES13	Cantabria	5.326	527.738	1	0	0	1	2	0	0	2	2	2	2	7	6	41	High	2
ES21	Pais Vasco	7.159	2.102.915	1	0	0	1	2	0	0	2	2	2	1	7	5	34	Medium	2
ES51	Cataluña	32.147	6.067.170	1	1	0	1	2	2	0	1	2	2	1	9	5	45	High	2
ES52	Comunidad Valenciana	23.304	3.863.456	1	1	0	1	2	2	0	1	2	2	2	9	6	54	High	2
ES53	Islas Baleares	4.992	712.759	1	0	0	1	2	0	1	1	2	2	2	7	6	41	High	2
ES61	Andalucia	87.786	6.960.264	2	1	0	1	2	2	0	0	2	2	2	9	6	54	High	2
ES62	Region de Murcia	11.338	1.050.778	1	0	0	1	2	1	0	2	1	2	2	8	5	39	Medium	2
ES70*	Canarias - Tenerife	2.042	829.988	1	0	0	1	2	0	1	0	1	2	2	6	5	28	Medium	2
FI4	Oulu / Uleåborg	45.294	-	0	0	0	1	-	1	-	0	-	-	-	3	-			0
FI5	Lappi / Lappland	134.275	-	0	0	2	1	-	1	-	0	-	-	-	6	-			0
FI1	Etelä-Suomi / Södra Finland	9.485	-	0	0	0	1	-	0	-	1	-	-	-	3	-			0
FI2	Länsi-Suomi / Västra Finland	57.234	-	0	0	0	1	-	0	-	2	-	-	-	5	-			0
FI6	Ahvenanmaan maakunta / Landskapet Åland	1.461	-	0	0	0	1	-	0	-	0	-	-	-	2	-			0
FR22	Picardie	19.433	1.810.687	1	1	0	1	2	1	0	2	0	2	2	9	4	36	Medium	2
FR23	Haute-Normandie	12.306	1.737.247	1	2	0	1	2	1	0	1	2	2	2	9	6	54	High	2

* Because not all indicators all available for all regions, the sensitivity and impacts score of regions with missing indicators have been adjusted by an extrapolation formula in order to become comparable with the score of other regions in that respect.

REGION CODE	REGION Name	REGION Total area (km2)	REGION Total population (inhab.)	sea level rise (range*)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Highest water level (range**)	urbanisation rate 1975-1990 within 10 km	Likely non-erodable coast length (km)	Area under the influence of coastal erosion - RICE* (km2)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanisation rate 1975-1990 OR Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)	SENSITIVITY SCORE	IMPACT SCORE	FINAL SCORE*	EXPOSURE	Reliability
FR25	Basse-Normandie	17.762	1.391.318	1	1	0	1	2	1	1	1	2	2	2	9	6	54	High	2
FR30	Nord-Pas-de-Calais	12.309	3.965.058	1	2	0	2	2	2	1	1	2	2	1	12	5	62	Very High	2
FR51	Pays de la Loire	32.316	3.059.112	1	1	0	1	2	1	1	1	2	2	2	9	6	54	High	2
FR52	Bretagne	27.699	2.795.638	1	1	1	1	2	0	1	1	2	2	2	9	6	54	High	2
FR53	Poitou-Charentes	25.995	1.595.109	1	1	2	1	2	2	1	1	2	2	2	12	6	74	Very High	2
FR61	Aquitaine	41.819	2.795.830	1	1	0	1	2	2	1	2	2	2	2	11	6	68	Very High	2
FR81	Languedoc-Roussillon	27.908	2.114.985	1	1	0	1	2	2	1	2	2	2	2	11	6	68	Very High	2
FR82	Provence-Alpes-Côte-d'Azur	31.542	4.257.907	1	1	0	1	2	1	1	1	2	2	2	9	6	54	High	2
FR83	Corse	8.835	250.371	1	0	0	1	2	0	0	1	1	2	2	6	5	28	Medium	2
FR91	Guadeloupe	1.657	-	1	1	-	1	-	0	-	1	-	-	-	7	-			0
FR93	Guyane	84.618	-	1	2	-	1	-	0	-	2	-	-	-	11	-			0
GR11	Anatoliki Makedonia, Thraki	14.203	1.792.194	1	1	2	1	0	1	1	1	1	0	2	9	3	27	Medium	2
GR12	Kentriki Makedonia	18.861	3.994.919	1	1	2	1	0	1	2	0	2	0	1	9	3	27	Medium	2
GR14	Thessalia	14.067	907.833	1	2	2	1	0	0	0	0	0	0	2	7	2	14	Low	2
GR21	Ipeiros	9.164	583.383	1	1	2	1	0	1	0	2	0	0	2	9	2	18	Low	2
GR22	Ionia Nisia	2.304	207.387	1	1	0	1	0	0	2	1	1	0	2	7	3	20	Low	2
GR23	Dytiki Ellada	11.304	3.184.502	1	1	1	1	0	2	1	1	1	0	2	9	3	27	Medium	2
GR24	Sterea Ellada	15.510	1.548.471	1	1	2	1	0	1	0	1	1	0	2	8	3	24	Low	2
GR25	Peloponnisos	15.540	906.492	1	1	2	1	0	0	0	1	1	0	1	7	2	14	Low	2
GR30	Attiki	3.819	3.538.722	1	1	2	1	0	1	2	1	2	1	1	10	4	41	High	2
GR41	Voreio Aigaio	3.854	-	1	1	-	1	0	0	2	1	-	0	2	8	3	23	Low	1
GR42	Notio Aigaio	5.329	-	1	1	-	1	0	0	2	0	-	0	2	6	3	19	Low	1
GR43	Kriti	8.365	-	1	2	-	1	0	0	1	1	-	0	2	8	3	23	Low	1
IE01	Border, Midland and Western	33.200	948.643	2	0	0	1	2	1	0	0	1	2	2	7	5	34	Medium	2
IE02	Southern and Eastern	36.794	2.542.925	2	1	0	1	2	0	0	0	1	2	2	7	5	34	Medium	2
ITC3	Liguria	5.419	1.567.889	1	1	0	1	2	0	0	2	2	2	2	8	6	47	High	2
ITD3	Veneto	18.416	4.540.026	1	0	0	2	2	0	2	2	2	2	1	10	5	51	High	2
ITD4	Friuli-Venezia Giulia	7.850	1.179.188	1	0	0	1	2	0	2	0	2	2	1	7	5	34	Medium	2
ITD5	Emilia-Romagna	22.153	4.035.131	1	0	0	1	2	2	2	2	2	2	1	11	5	56	Very High	2
ITE1	Toscana	22.997	3.447.067	1	0	0	1	2	1	1	2	2	2	1	9	5	45	High	2
ITE3	Marche	9.708	1.428.526	1	1	0	1	2	1	0	2	1	2	1	9	4	36	Medium	2

* Because not all indicators all available for all regions, the sensitivity and impacts score of regions with missing indicators have been adjusted by an extrapolation formula in order to become comparable with the score of other regions in that respect.

REGION CODE	REGION Name	REGION Total area (km2)	REGION Total population (inhab.)	sea level rise (range*)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Highest water level (range**)	urbanisation rate 1975-1990 within 10 km	Likely non-erodable coast length (km)	Area under the influence of coastal erosion - RICE* (km2)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanisation rate 1975-1990 OR Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)	SENSITIVITY SCORE	IMPACT SCORE	FINAL SCORE*	EXPOSURE	Reliability
ITE4	Lazio	17.252	4.843.576	1	1	0	1	2	1	1	1	2	2	1	9	5	45	High	2
ITF1	Abruzzo	10.829	1.232.454	1	1	0	1	2	1	0	2	1	2	1	9	4	36	Medium	2
ITF2	Molise	4.431	300.143	1	2	0	1	2	0	0	2	0	2	2	9	4	36	Medium	2
ITF3	Campania	13.638	5.642.397	1	1	0	1	2	0	1	1	2	2	1	8	5	39	Medium	2
ITF4	Puglia	19.358	3.918.430	1	1	0	1	2	0	1	2	2	2	2	9	6	54	High	2
ITF5	Basilicata	10.003	568.967	1	1	0	1	2	1	0	2	0	2	2	9	4	36	Medium	2
ITF6	Calabria	15.116	1.945.130	1	2	0	1	2	1	0	0	2	2	1	8	5	39	Medium	2
ITG1	Sicilia	25.788	4.793.417	1	0	0	1	2	1	0	0	2	2	2	6	6	34	Medium	2
ITG2	Sardegna	24.167	1.584.203	1	0	0	1	2	0	1	0	2	2	2	6	6	34	Medium	2
LT	Lietuva	64.852	-	0	1	-	1	2	2	0	0	-	2	2	8	6	46	High	1
LV	Latvija	64.265	-	0	1	-	2	0	2	0	0	-	1	2	6	5	29	Medium	1
MT	Region Malta	317	-	1	0	-	1	-	0	2	0	-	-	0	6	-			
NL11	Groningen	2.391	653.117	2	0	0	2	1	2	2	1	2	1	1	11	4	45	High	2
NL12	Friesland	3.523	765.631	2	1	1	2	1	2	2	2	2	1	1	15	4	59	Very High	2
NL32	Noord-Holland	2.829	4.232.625	2	1	0	2	0	2	2	1	2	1	1	11	4	45	High	2
NL33	Zuid-Holland	3.262	4.176.088	2	1	1	2	1	2	2	1	2	1	1	14	4	54	High	2
NL34	Zeeland	1.922	831.878	2	1	0	2	0	2	2	0	2	0	1	10	3	30	Medium	2
PL0B	Pomorskie	18.139	-	0	1	-	1	2	2	2	1	-	2	1	12	5	52	High	1
PL0E	Warminsko-Mazurskie	23.975	-	0	2	-	1	2	0	0	1	-	2	2	8	6	46	High	1
PL0G	Zachodniopomorskie	22.399	-	0	2	-	1	2	2	1	2	-	2	2	13	6	77	Very High	1
PT11	Norte	21.231	3.434.500	2	2	0	1	-	2	0	1	1	1	2	10	4	41	High	2
PT12	Centro	23.557	1.709.000	2	1	2	1	1	2	0	1	1	1	2	11	4	45	High	2
PT13	Lisboa e Vale do Tejo	12.023	3.313.300	2	1	0	1	1	0	1	0	2	1	2	7	5	34	Medium	2
PT14	Alentejo	26.829	540.600	2	0	0	1	1	1	0	0	0	1	2	6	3	17	Low	2
PT15	Algarve	4.994	367.800	2	1	0	1	1	1	1	1	2	1	2	9	5	45	High	2
PT20*	Azores - Sao Miguel	747	-	2	0	0	1	1	0	1	2	-	1	0	8	2	12	Low	1
PT30	Madeira	810	-	2	0	0	1	1	0	0	2	-	1	0	7	2	10	Low	1
RO02	Romania	35.179	-	0	2	-	1	-	2	2	2	-	0	2	14	3	41	High	1
SE01	Stockholm	6.665	-	0	0	0	1	-	0	-	1	-	-	-	3	-			0
SE02	Östra Mellansverige	41.124	-	0	0	0	1	-	0	-	1	-	-	-	3	-			0
SE04	Sydsverige	14.342	-	0	1	0	1	-	1	-	2	-	-	-	8	-			0
SE06	Norra Mellansverige	69.247	-	0	0	0	1	-	2	-	2	-	-	-	8	-			0

* Because not all indicators all available for all regions, the sensitivity and impacts score of regions with missing indicators have been adjusted by an extrapolation formula in order to become comparable with the score of other regions in that respect.

REGION CODE	REGION Name	REGION Total area (km2)	REGION Total population (inhab.)	sea level rise (range*)	Coast length which is eroding (km)	Former stable coastline (1986) which is unstable in 2001 (km)	Highest water level (range**)	urbanisation rate 1975-1990 within 10 km	Likely non-erodable coast length (km)	Area under the influence of coastal erosion - RICE* (km2)	Coast length with defence works & artificial beaches (km)	Population living within the area of influence of coastal erosion (inhab.)	Urbanisation rate 1975-1990 OR Urbanized and industrial area under the influence of coastal erosion (km²)	Area of high ecological value under the influence of coastal erosion (km²)	SENSITIVITY SCORE	IMPACT SCORE	FINAL SCORE*	EXPOSURE	Reliability
SE07	Mellersta Norrland	76.871	-	0	0	0	1	-	0	-	2	-	-	-	5	-			**0**
SE08	Övre Norrland	164.355	-	0	0	0	1	-	2	-	1	-	-	-	6	-			**0**
SE09	Smaland med öarna	35.379	-	0	2	0	1	-	0	-	0	-	-	-	5	-			**0**
SE0A	Vastsverige	30.841	-	0	2	0	1	-	0	-	0	-	-	-	5	-			**0**
SI	Slovenija	20.005	-	1	1	0,0	2	2	1	0	2	-	2	0	10	3	30	Medium	**1**
UKC	North East	8.582	2.551.141	2	1	0	2	-	0	0	1	2	2	2	8	6	46	High	**2**
UKD	North West	12.862	6.260.841	1	1	0	1	-	0	1	1	2	1	2	6	5	32	Medium	**2**
UKE	Yorkshire & the Humber	11.830	4.836.524	2	2	0	2	-	0	2	0	2	1	1	10	4	41	High	**2**
UKF	East Midlands	5.915	3.953.372	2	0	0	1	-	0	2	1	2	1	1	8	4	31	Medium	**2**
UKH	East of England	16.222	2.027.004	2	1	0	2	-	1	2	0	2	1	2	10	5	51	High	**2**
UKI	London	1.577	6.679.699	1	-	-	2	-	-	2	-	2	2	0	15	4	60	Very High	**1**
UKJ	South East	13.326	17.208.264	2	1	1	2	-	0	1	1	2	2	1	10	5	51	High	**2**
UKK	South West	23.890	4.609.424	1	1	1	1	-	0	1	0	2	1	2	6	5	32	Medium	**2**
UKL	Wales	20.764	2.835.073	1	1	1	1	-	0	0	0	2	1	2	5	5	26	Medium	**2**
UKM	Scotland	79.002	5.057.811	2	0	0	1	-	0	1	0	2	0	1	5	3	15	Low	**2**
UKN	Northern Ireland	13.740	1.577.836	1	1	0	2	1	0	0	1	1	1	2	7	4	27	Medium	**2**

* Because not all indicators all available for all regions, the sensitivity and impacts score of regions with missing indicators have been adjusted by an extrapolation formula in order to become comparable with the score of other regions in that respect.