

# Methodology for approaching Integrated Coastal Zone Management –Romanian experience

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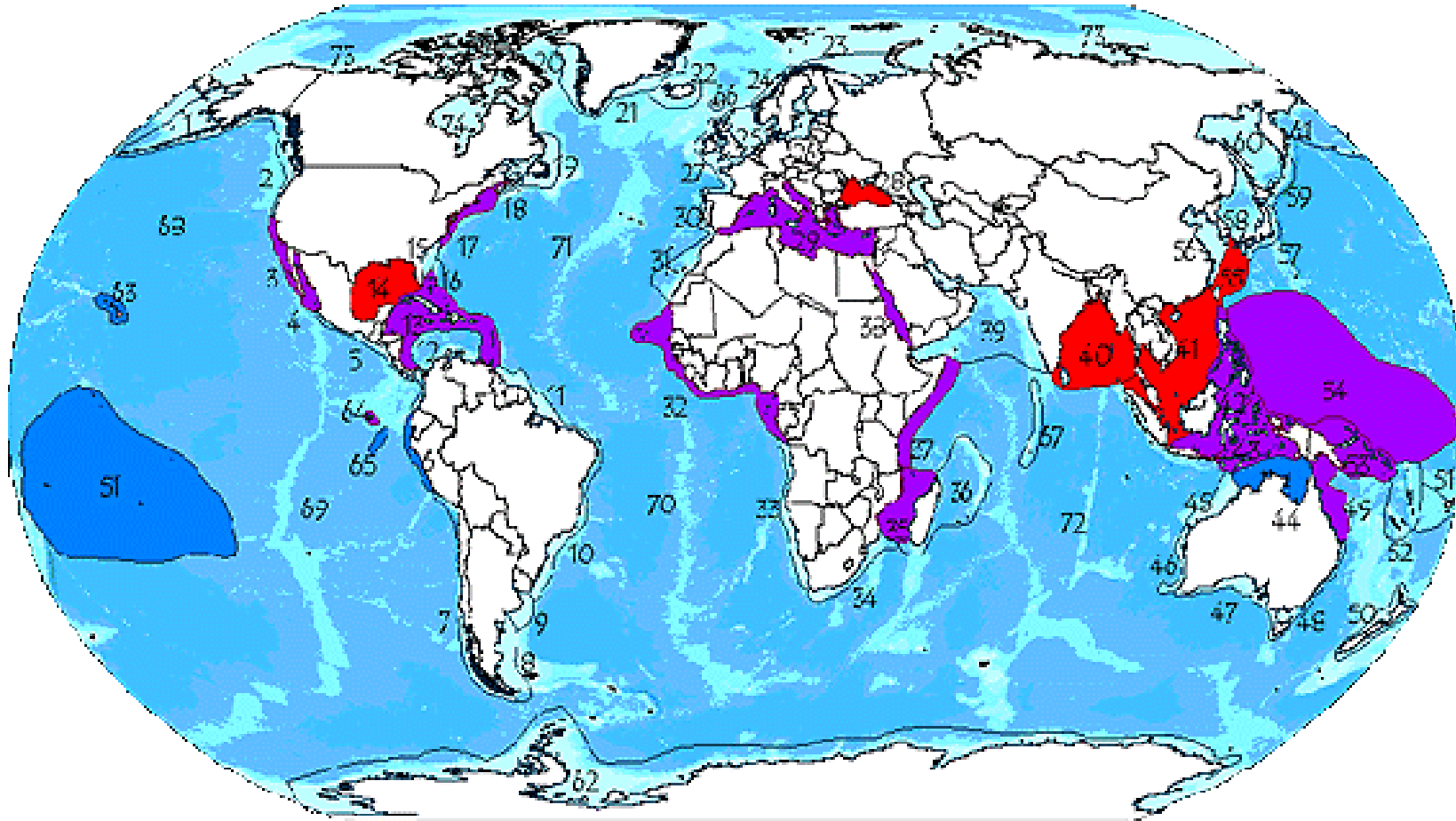
Ministry of Environment, Water and Forests

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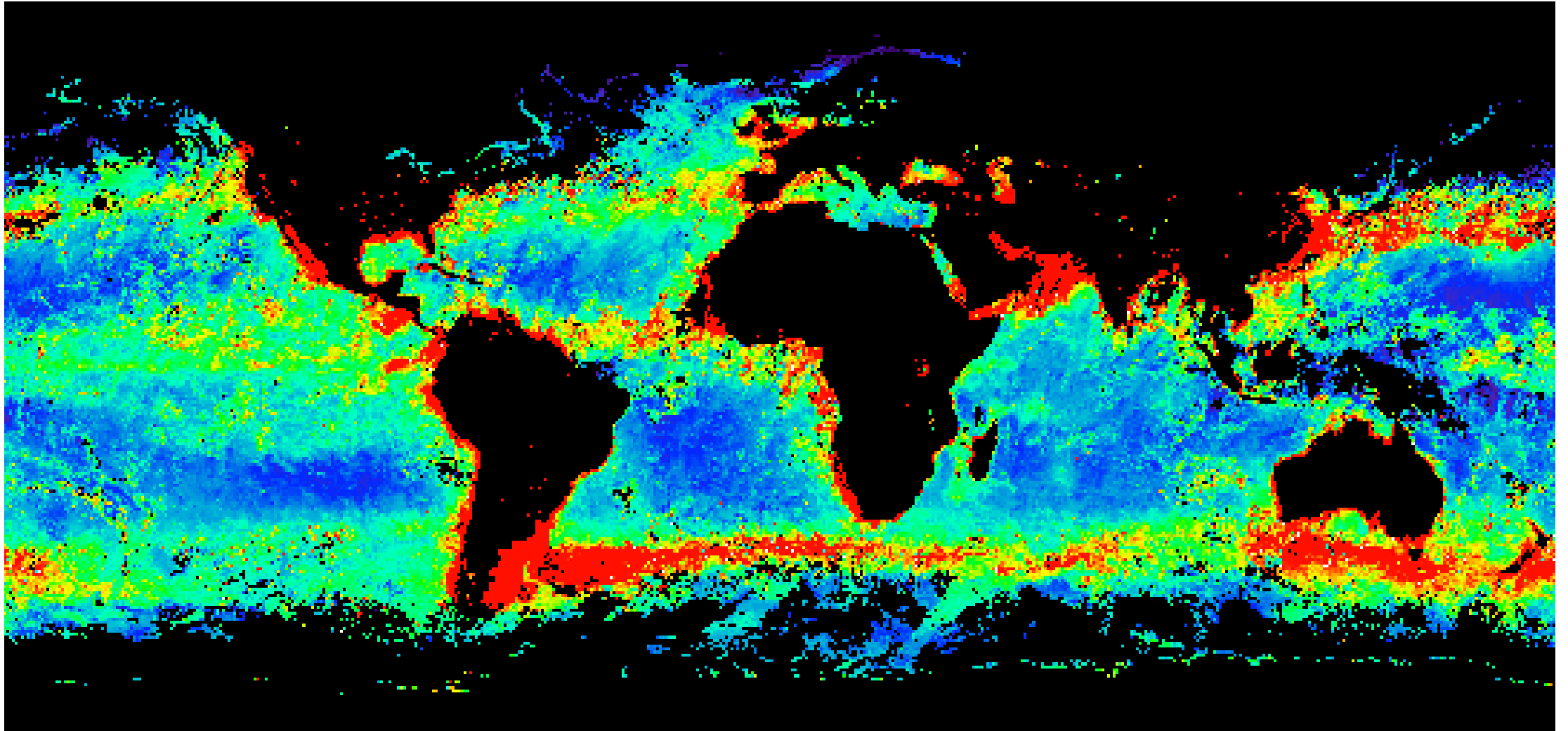
# Integrated Coastal Zone Management

- **Integrated coastal zone management (ICZM)** or Integrated coastal management (ICM) is a process for the management of the [coast](#) using an integrated approach, regarding all aspects of the coastal zone, including geographical and political boundaries, in an attempt to achieve sustainability

The most valuable, the most threatened and the most critical areas for marine conservation



# Seas productivity



# Objective of ICZM

- Optimize benefits from coastal and marine resources, specifically for local communities
- Identify desired uses
- Minimize conflicts
- Prevent environmental degradations

# ICZM Expectations

- Maintaining the functional integrity of the coastal resource systems;
- Reducing resource-use conflicts;
- Maintaining the health of the environment;
- Facilitating the progress of multisectoral development

*Legislative aspects*

Existence of legal procedures for coordination of coast management decisions	<p>Government Ordinance no.202/2002 on the integrated coastal zone management, approved by Law no.280/2003</p> <p>year: 2002</p>
Existence of bodies for coordination of coastal management decisions	<p>Government Decision No.1015/2004 regarding the organization and working rules of the Coastal Zone National Committee</p> <p>Government Decision No.749/2004 establishes the responsibilities, criteria and the delineation manner of the land stripe close to the coastal zone to preserve the environment, patrimonial and landscape values close to the shore</p>
Existence of legal planning procedures for coordination of coastal management decisions	<p>Government Decision No.5467/2004 regarding the approval of the methodology for delineation of public state domain in the coastal zone</p> <p>year: 2004</p>

## *Legislative aspects*

<b>Existence of legal integrated permitting procedures for coordination of coastal management decisions</b>	<b>Law 50/1991 on authorization of constructions of building and some measures for housing construction, as amended</b>  <b>year 1991</b>
<b>Legal document – normative act guaranteeing that all the coastal line is free for the access of the public</b>	<b>Government Ordinance no. 202/2002 on the integrated coastal zone management, approved by Law no.280/2003</b>  <b>year 2002</b>



# National Committee for Coastal Zone

- The National Committee of the Coastal Zone (NCCZ) was established in June 2004 by Government Decision no. 1015/2004 in order to ensure an integrated coastal zone management. According to the Government Emergency Ordinance no. 202/2002 on integrated coastal zone management approved with further modification through Law no. 280/2003, representation in NCCZ encompasses about 40 central, local and regional authorities, institutions and stakeholders, NGOs



On 20 September 2012 the 14th Session of the NCZZ was held, organized by NIMRD. The meeting was attended by 32 representatives of 40 institutions currently involved in NCCZ.  
(the most recent meeting of the NCCZ – May 2013)

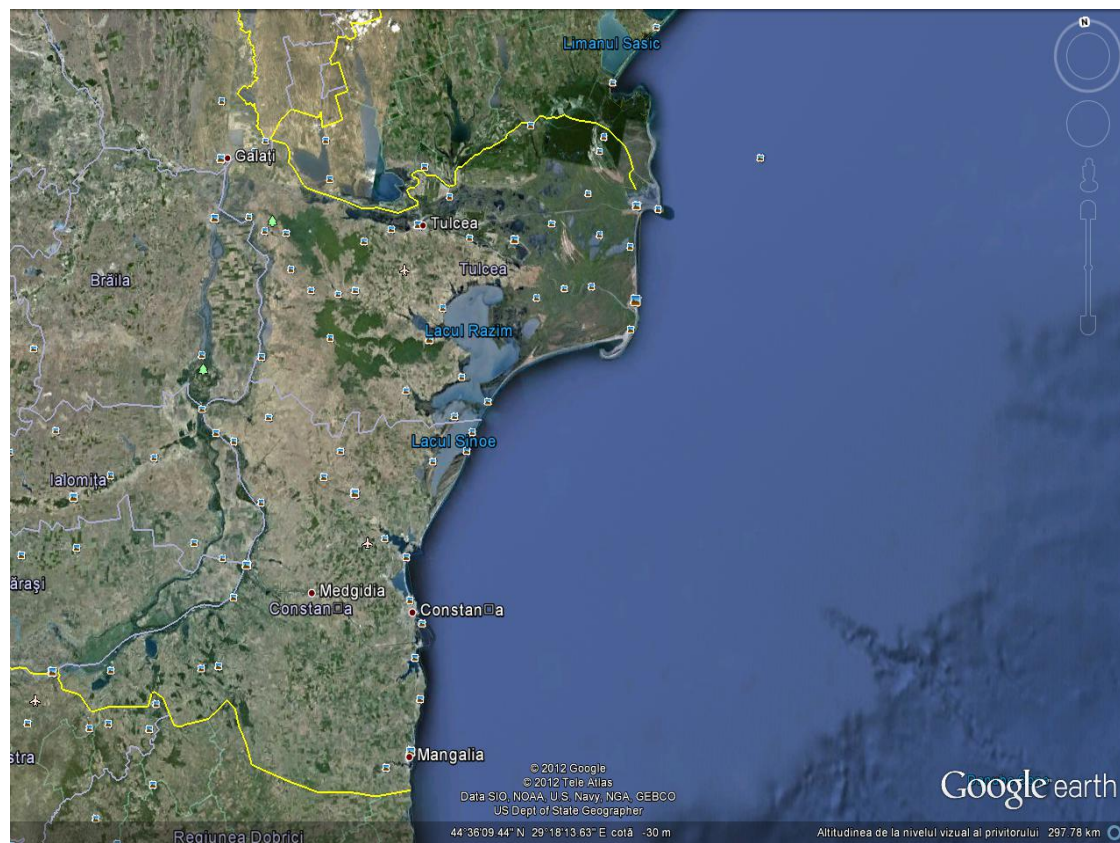
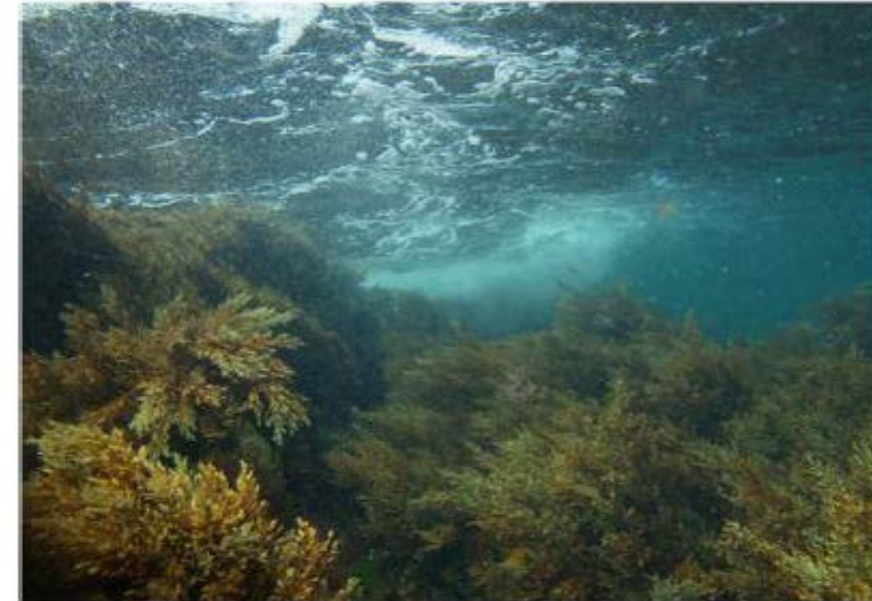
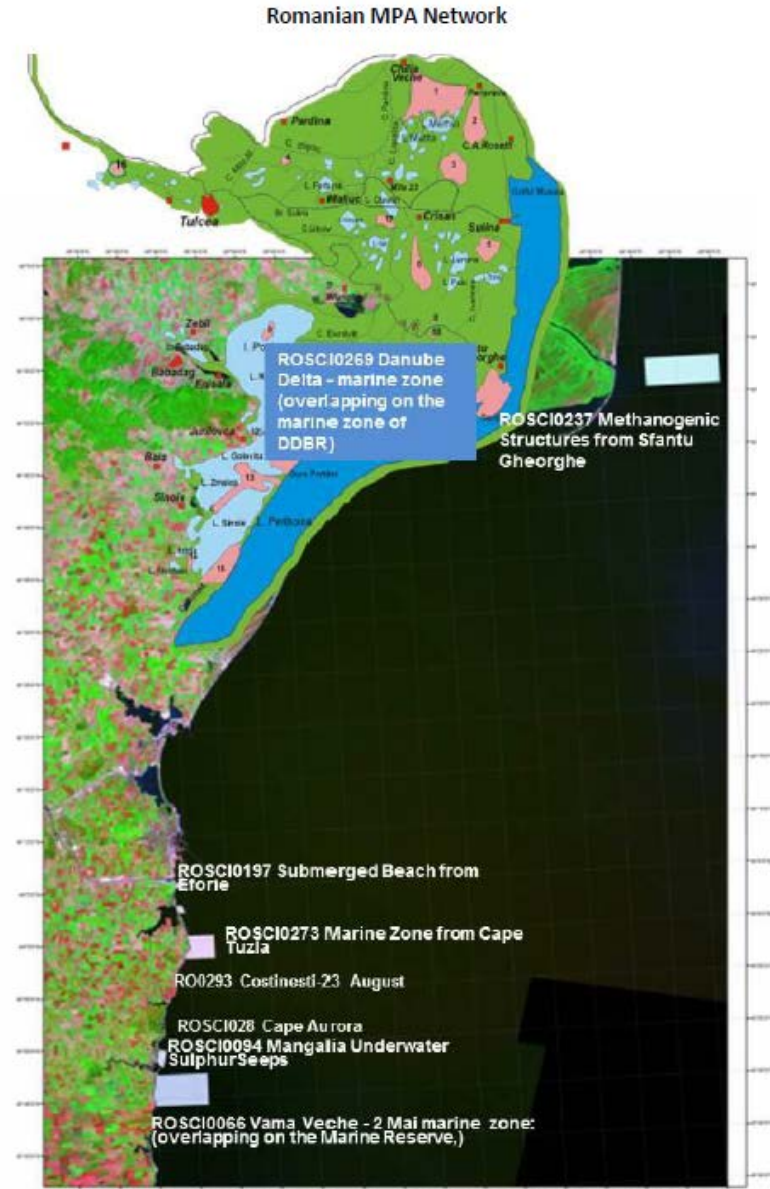


Fig.1. Romanian coastal zone



# Biodiversity

ROSCI0269 2 Mai - Vama Veche Marine Reserve

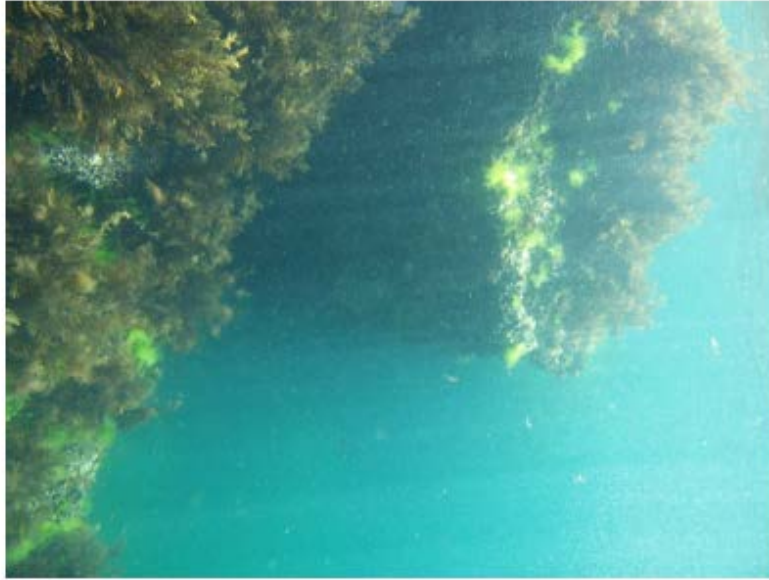


ROSCI0094 Underwater sulphide seeps from Mangalia



*Cystoseira* near a sulphide seep Photo Dragos Micu (NIMRD)

ROSCI0273 Cape Tuzla marine area



ROSCI0237 Methanogenic submerged structures from Sfantu Gheorghe



ROSCI0197 The submerged beach from Eforie North - Eforie South



ROSCI0066 Danube Delta Biosphere Reserve - marine area



Marine beach in Sulina



[illegible]

The map shows the northern Adriatic coastline from Trieste to the Gulf of Trieste. The study area is highlighted in red, indicating the location of Punta Piccola and Taliere. The map includes a scale bar (0 to 10 km) and a north arrow. The legend indicates that red dots represent 'Punta Piccola' and black dots represent 'Taliere'.

The map displays the coastal zone of the Iberian Peninsula, highlighting the distribution of the SCI\_Zona costeira. The land area is divided into yellow and blue regions. The SCI\_Zona costeira is highlighted in pink along the coast. A legend in the bottom right corner identifies the yellow area as 'SPA\_Zona costeira' and the pink area as 'SCI\_Zona costeira'. A scale bar at the bottom right indicates distances up to 100 km.

- a. Main uses (update);
- b. Coastal map of fisheries;
- c. Marine Protected Areas (MPAs)

# Coastal erosion

## Coastal Process

Field measurements were performed by NIMRD “Grigore Antipa” Constanta during surveys organized together with the Hydrographic Maritime Directorate.

The measurements were shoreline surveys using GIS class GPS devices (GeoXH, ProXH, Juno-INCDM) and geodetic GPS devices (Leika GPS - DHM). Field trips were performed approximately during the same period for each section (May-June 2012 for Sulina - Ciotica, September 2012 for Zăton - Periboina).

During the winter of 2012, as a follow-up of low temperatures along with an exceptional storm, specific ice structures - ice pegs, grouped in ridge steps - developed on the entire area of the beach, continued by ice belts.



*Source: NIMRD Report on the State of the Marine and Coastal Environment in 2012*

# Coastal erosion



For the Mamaia Bay (shallow waters and low choppiness due to breakwater dams), the ice cap developed up to 200 m offshore, with 1 m thick ice.



# MAMAIA SOUTH COAST PROTECTION

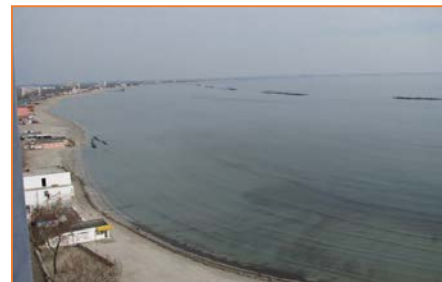
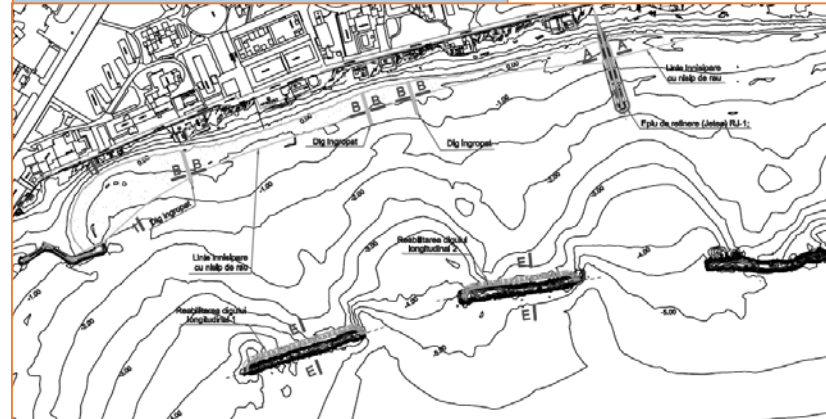
*Black Sea, Romania*

## Project Features

Coast Protection  
Erosion Risk Reduction  
Enhanced Environment

## Approved Capacities

Beach Recharge	1.2 km
Rehabilitate Submerged Breakwaters	0.5 km
Sand Retaining Groynes	0.2 km
Buried Groynes	0.5 km



# TOMIS NORTH COAST PROTECTION

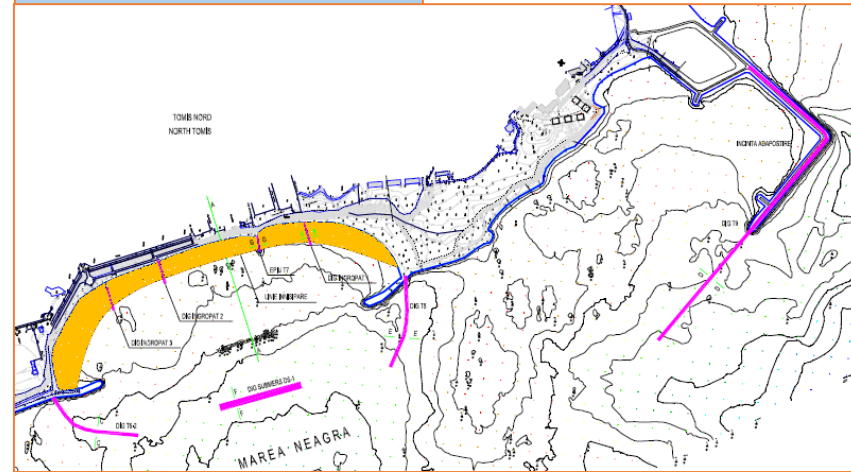
*Black Sea, Romania*

## Project Features

Coast Protection  
Erosion Risk Reduction  
Enhanced Environment

## Approved Capacities

Beach Recharge	332,573 m <sup>3</sup>
New Breakwaters	0.975 km
Submerged Breakwaters	0.26 km
Buried Groynes	0.21 km

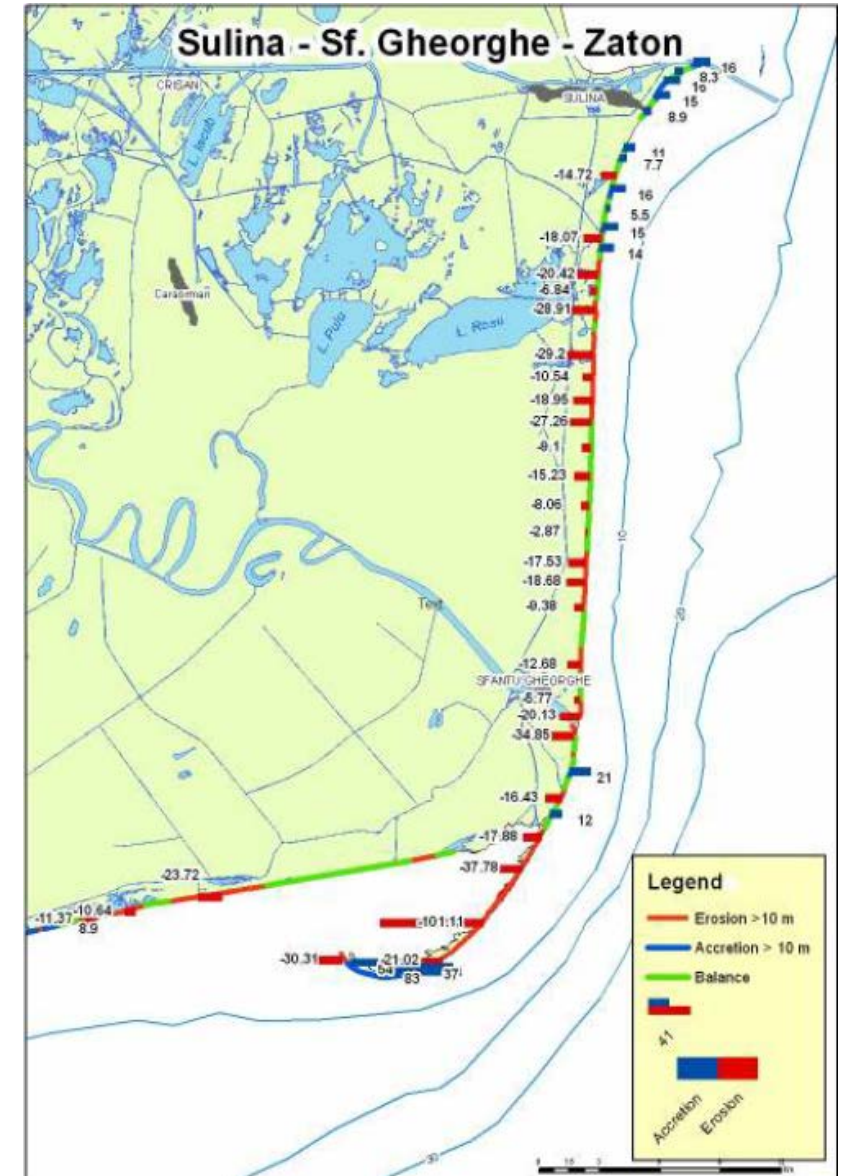


**Halcrow**

# Coastal erosion

In the delta and lagoon shore area, the following were found:

- Sulina area - shoreline advancement by 7-15 m;
  - Gârla Împuțita - Casla Vădanei - shoreline retreat by 5-10 m, up to 30 m in the Canal Sonda area;
  - Sf. Gheorghe - Sachalin - shoreline retreat by 10 up to 20 m in the Sf. Gheorghe area; in the central part of the Sachalin Peninsula, the shoreline retreated by 20 m up to 50 m, accumulation processes being dominant in the south;
  - In the Ciotica-Peritor-Gura Portitei area, a relative balance was maintained, with shoreline advancement areas up to 15 m in the Periteatca area;
- Portita-Vadu area: the shoreline retreated by up to 14 m in the Portita Lighthouse area, 15-30 m in the Gura Periboina area, up to 20-40 m in the Edighiol area and up to 40 m in the Chituc Levee area, and advanced by 19-30 m in the Vadu area.

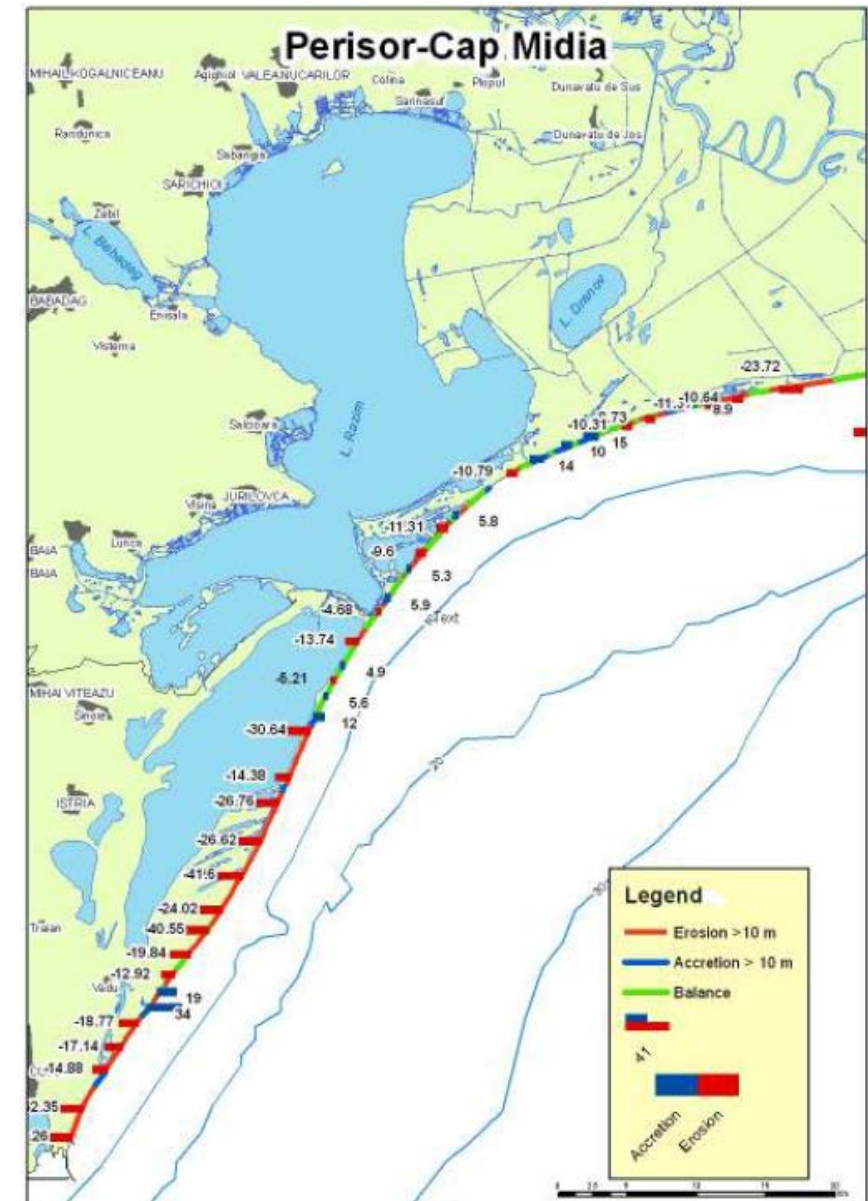


Source: NIMRD Report on the State of the Marine and Coastal Environment in 2012

# Coastal erosion

For the northern sector of the coast, the accumulated areas covered ~74 ha, while the eroded areas covered ~153 ha.

The shoreline advancement by > 10 m was reported on ~12% of the total length, shoreline retreat by > 10 m on ~52%, the rest of the coast being in dynamic balance - the shoreline retreated or advanced by less than +/- 10 m.





# Tourism

Indicators	UNITS	2006	2007	2008	2009	2010	2011	2012
Touristic accommodation capacities	Th. places	125343	125343	124730	126777	128931	87407	84690
Touristic accommodation units in coastal zone	No/year	1106	1109	1171	1157	1224	790	N/A
Number of tourist arrivals	thousand	897993	1000279	1074309	968156	871510	926369	1041014
a) National		874294	988571	1056894	952591	857206	903555	986217
b) From abroad		23699	11708	17415	15565	14304	22814	54797
Number of tourist facilities conducting ecological audit	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. of tourist companies promoting	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carrying capacity of beaches	sq.m per person	4	4	4	4	4	4	4
No. of "Blue Flag" beaches	No	N/A	N/A	N/A	N/A	N/A	1	1
Number of tourist staying overnight		4549333	4582733	4611000	3877341	3275705	3491519	N/A

Source: National Institute of Statistics  
2012 Statistical Yearbook

# Mamaia Resort, Northern part



## *Solid Waste Management* (only for CONSTANTA county)

INDICATORS	UNITS	2006	2007	2008	2009	2010	2011	2012
Industrial wastes	tonnes/ year	117584	126550	112220	115560	156851	118261	114636
Hazardous industrial wastes	tonnes/ year	36122	38366	40052	38006	41908	38114	39636
Municipal wastes	th. m3	1231.1	1244.7	1114.8	1255.8	1129.7	1364.6	1261.4
Number of landfills	units	N/A	N/A	N/A	N/A	7	9	9
Total capacity of landfills	tonnes	N/A	N/A	N/A	N/A	N/A	N/A	374693,6
Number of incineration plants	no.	N/A	N/A	N/A	N/A	N/A	2	2

Source: Constanta Agency for Environmental Protection  
National Report on the State Environment

# Agriculture

INDICATORS	UNITS	2006	2007	2008	2009	2010	2011	2012
Total area of agricultural lands	thousand ha	928.0	928.3	928.3	926.5	924	992.1	992.1
Arable lands treated with mineral fertilizers	thousand ha	341.3	354.2	380.6	548.5	N/A	668	623
Fertilizers application rate <b>(only for Constanta county)</b>	kg per ha	14.3	17.6	14.1	N/A	N/A	25.7	27.7
Arable lands treated with pesticides	sq.km	456.5	429.3	485	N/A	576.6	N/A	668.4
Pesticides application rate	kg per ha	0.11	0.14	N/A	N/A	N/A	N/A	N/A
Area of irrigated lands	ha	N/A	N/A	N/A	424206	561154	594512	594512

Source: National Institute of Statistics  
County Directorate of Statistic Constanta  
County Directorate of Statistic Tulcea  
2012 Statistical Yearbook



# Transport

Indicators	UNITS	2006	2007	2008	2009	2010	2011	2012
Density of public road network	km/km <sup>2</sup>	0.245	0.245	0.245	0.235	N/A	0.242	0.242
Number of airports	no.	2	2	2	2	2	2	2
Length of rail ways	km	843	843	843	882	882	879	879
No of harbours	No	4	4	4	4	4	4	4
Total harbour area	ha				3900	4952	5729.8	5729.8
Harbour capacity	Traffic mln/tons/year	60.6	71.7	74.4	42	47.5	53.23	50.58
Number of oil terminals	th.t	1	1	1	1	1	1	1
Capacity of oil terminals	th.t.per year	13.978	13.978	13.978	N/A	N/A	17.034	N/A

## Sea level

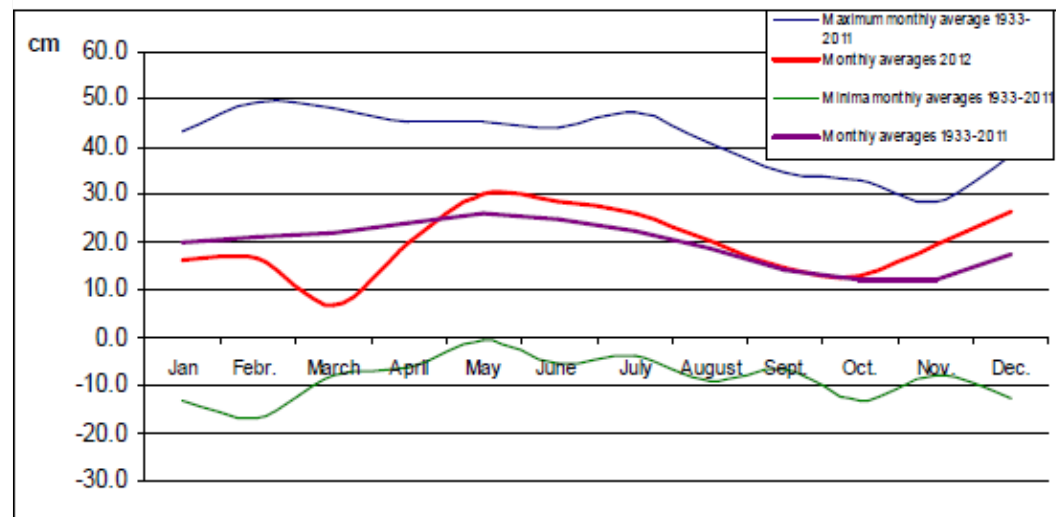
Sea level, as one of the coastal zone state indicators, showed in 2012 three distinct fluctuation stages in relation to the monthly multiannual means (1933-2011).

Thus, during January – April 2012, the level was below the monthly multiannual means, during May to September 2012 the values exceeded slightly the monthly multiannual means for these months.

In September and October 2012, the monthly multiannual means were almost equal to the monthly multiannual means for these months, while during November and December 2012 the monthly multiannual means were again exceeded.

The minimum monthly multiannual mean of 0.7 cm was recorded in March, while the maximum monthly multiannual value of 30.0 cm was recorded in May.

The annual mean was 3.3 cm higher than the multiannual mean for 1933-2011.



Sea level variations at the Romanian coast in 2012

***Thank You for Your attention!***