

Lessons learned from Marine Spatial Planning in Romanian Black Sea Coast. Pilot Projects Constanta and Sulina

DATA BASE AND MAPS

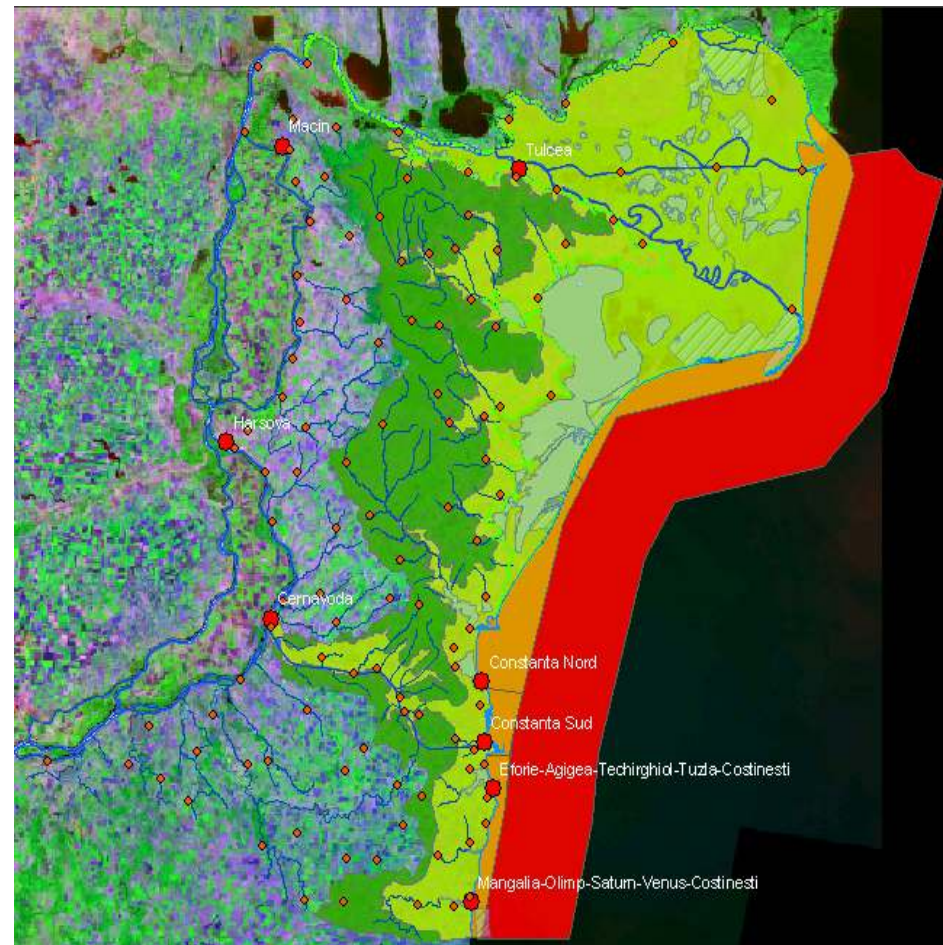
*Laura Alexandrov, Simion Nicolaev, Mariana Golumbeanu, Claudia Coman,
Razvan Mateescu, Marius Nedelcu, Luminita Buga*

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Basic Facts about the pilot project

- ✓ Small settlements
◆
- ✓ Major cities
●
- ✓ Shoreline (N)
—
- ✓ Shoreline (S)
—
- ✓ Danube Delta Reserve boundary

- ✓ Lakes
■
- ✓ Rivers
—
- ✓ Danube river
—
- ✓ Strictly protected areas
■
- ✓ Coastal_zone_management
Name
■ Impact zone
■ Planning zone
■ Management zone
■ Buffer zone
- ✓ landsat247TM1990.sid



EUROPEAN DIRECTIVES, ROMANIAN LAWS, ICZM

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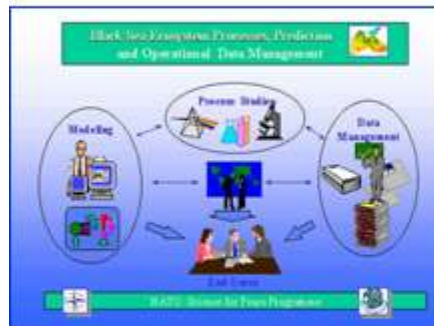
INSTRUMENTS WHICH REQUIRED SPATIAL COASTAL PLANNING

- *NATIONAL LAW FOR ICZM (L280/2003)*
- *ICZM STRATEGY DIRECTIVE*
- *INTEGRATED MARITIME STRATEGY*
- *LAW FOR ENVIRONMENT PROTECTION*
- *LAW FOR WATERS*
- *LAW FOR PROTECTED AREAS*
- *LAW FOR FISHERY AND AGRICULTURE*
- *LAW FOR URBANIZATION*
- *NATIONAL CONTINGENCY PLAN*

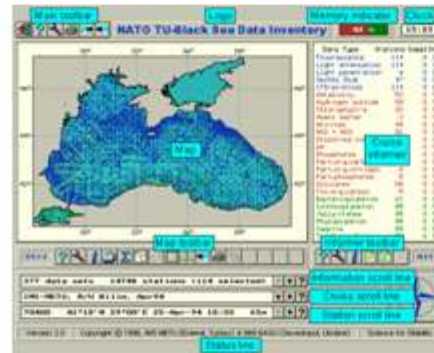
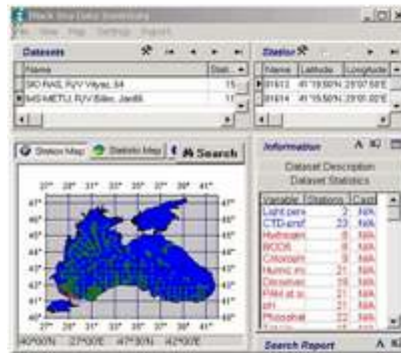


Data Collection





Contents	
The Black Sea	Main features of the Black Sea basin
Project Outline	Overview of the project objectives and activities
Modeling	Modeling approaches and results
Process Studies	Process studies in the Black Sea within the framework of the Project
Data Management	Description of the Database Management System
Dissemination	Dissemination of the results to the End Users for managerial purposes



- "GEF" (2002-2004)
- NATO / ODBMS SFP 971818 (1998-2003)
- COASTLEARN (2002-2003)
- CE / DANUBS (2001-2005)
- CE / ARENA" (2002-2006)
- ESEAS (2003-2005)
- SEA SEARCH (2002-2005)
- CE / Life Natura (2001-2004)
- SENTER (2003-2005)
- JICA (2005 –2006)
- ELME (2004-2005)
- IASON (2005-2006)
- 2005 –2006 – EVD –ANAR -DADL beneficiary
- Masterplan, Annual Reports

**Methodology
for Spatial Planning
within Integrated
Coastal Zone Management**

http://www.rmri.ro/EU_2850/EU2850_Maps.html

http://sfp1.ims.metu.edu.tr/Presentation2002/ODBMS_files/frame.htm

http://seadatanet.maris2.nl/v_edmo/print.asp?n_code=697

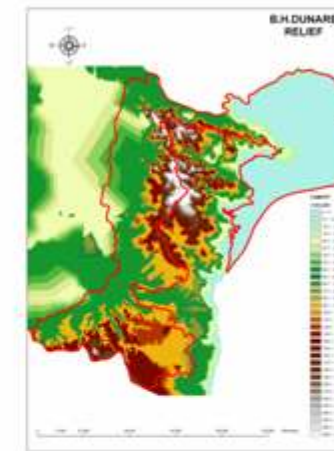
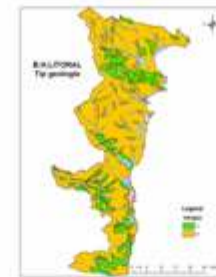
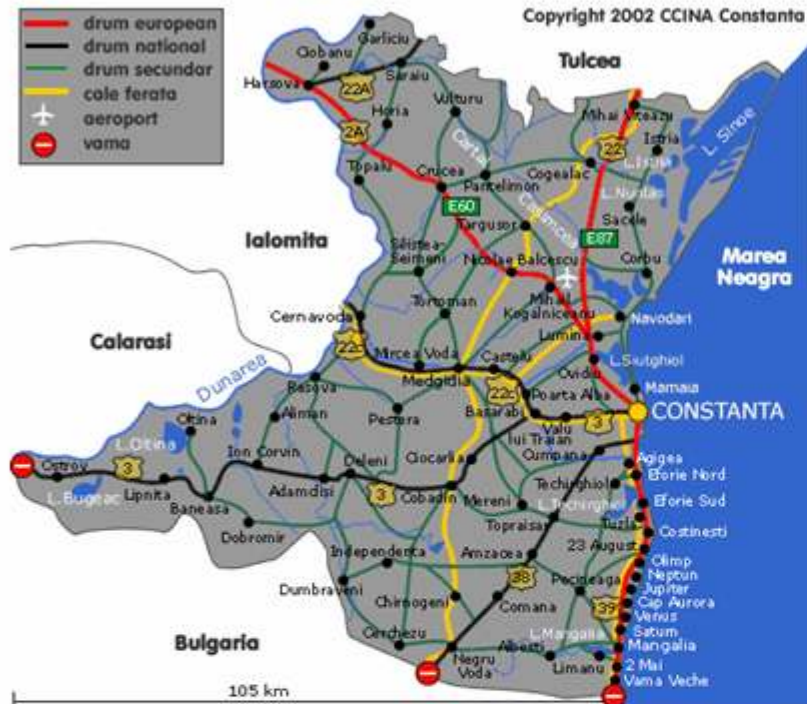
<http://www.rmri.ro/menu.ro.html>

<http://sfp1.ims.metu.edu.tr/>

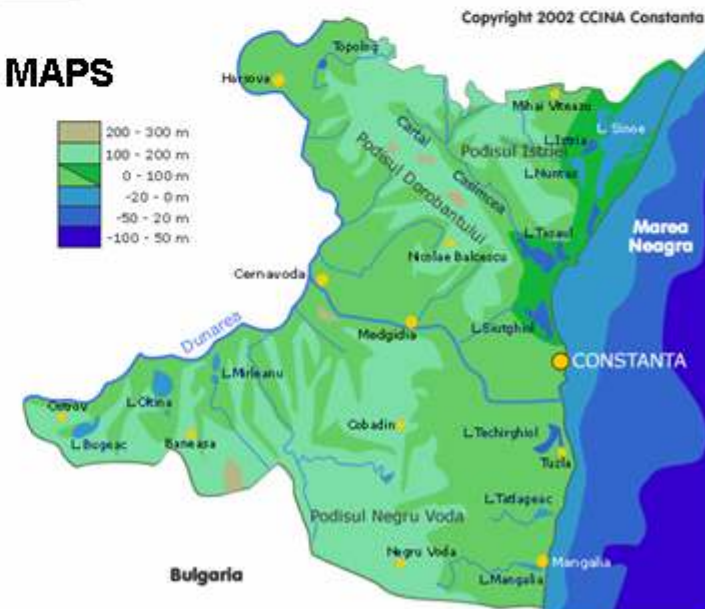


NIMRD "G.Antipa"
**National Center for Oceanographic
and Environment Data**

OTHER SOURCES



THEMATICAL MAPS



- Constanta and Tulcea Counties **Statistics**
- Chambers** of Commerce and Naviation
- Environmental Protection **Agencies**
- Prefectures Reports** about Environment Status
- Annual Research Reports **NIMRD/MESD** Ministry
- Other Research Institutions: **NIMRDDD Tulcea, GeoEcoMar**
- Bucharest, IPTANA Bucuharest, NIRD-INOE 2000 Magurele,**
University "OVIDIUS" Constanta, etc., ROMANIA



Marine fishery
Agriculture and food industry
Harbor activity and maritime transport
Naval constructions
Chemical and petrochemical industry
Nuclear Power Plant
Wood processing and paper manufacturing industry
Marinas
Airport and air transport
Tourism and agreement
House building
Military activities

THE MAIN ECONOMIC ACTIVITIES IN THE ROMANIAN COASTAL ZONE

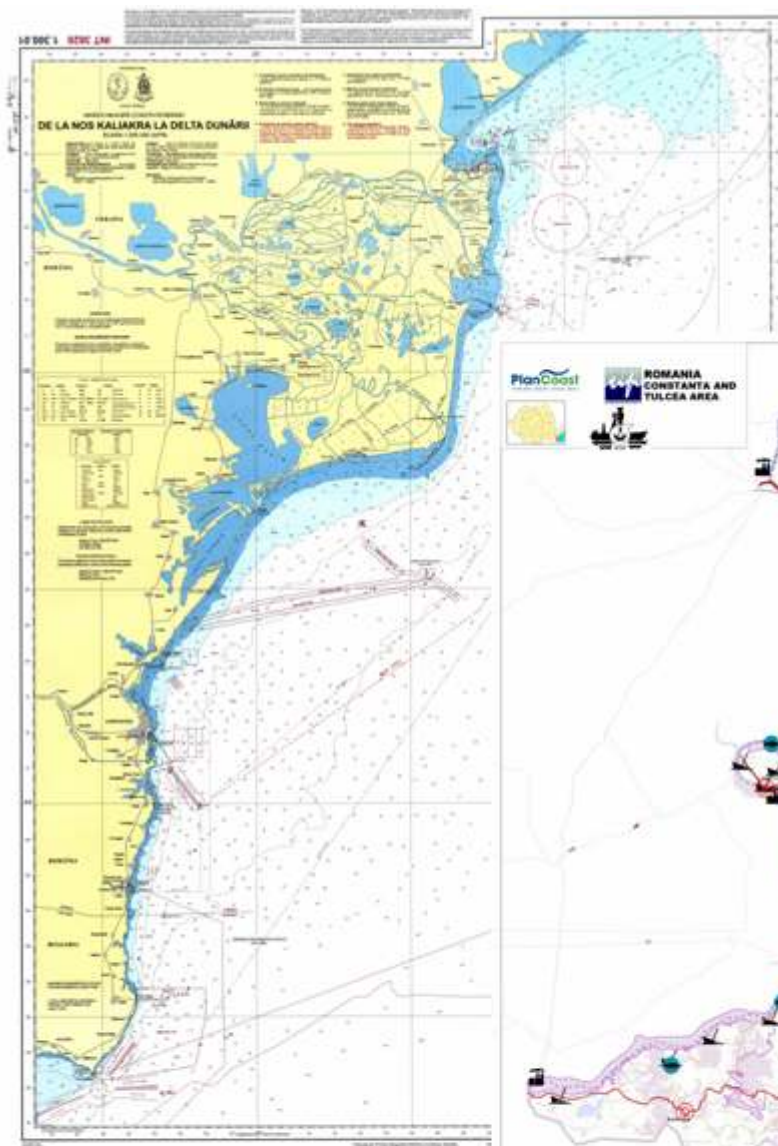


THE MAIN ENVIRONMENTAL PROBLEMS IDENTIFIED IN THE ROMANIAN COASTAL ZONE

- Coastal erosion
- Sediments dynamics
- Water pollution
- Air pollution
- Water pollution
- Urban expansion



- Absence of coherent policies and strategies of integrated development of coastal zone
- Presence of industrial platforms and the commercial port in the vicinity of tourist area creates images and comfort problems, and is an environment polluting factor
- Lack of joint long term strategy of the investors and of the public local and central administration with regards to the sustainable and integrated development of touristic sector



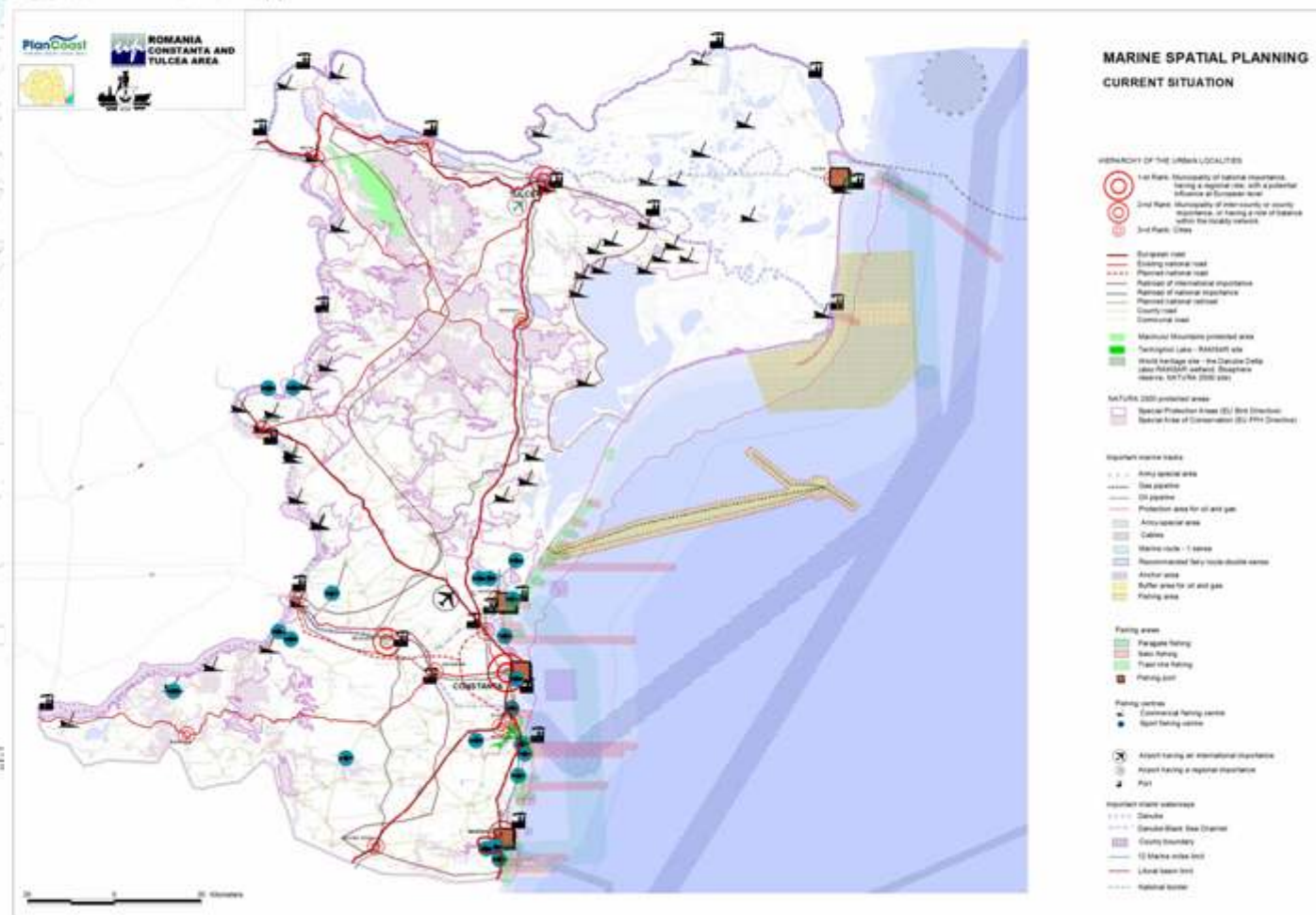
Maritime Hydrographic Directorate
Topo - hydrografica Survey
protected by law 8/1996

1:5 000/10 000



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| Adriatic | Baltic | Black Sea |

*Romanian sea waters jurisdiction
Marine environment protection
Natural parks and reservation*

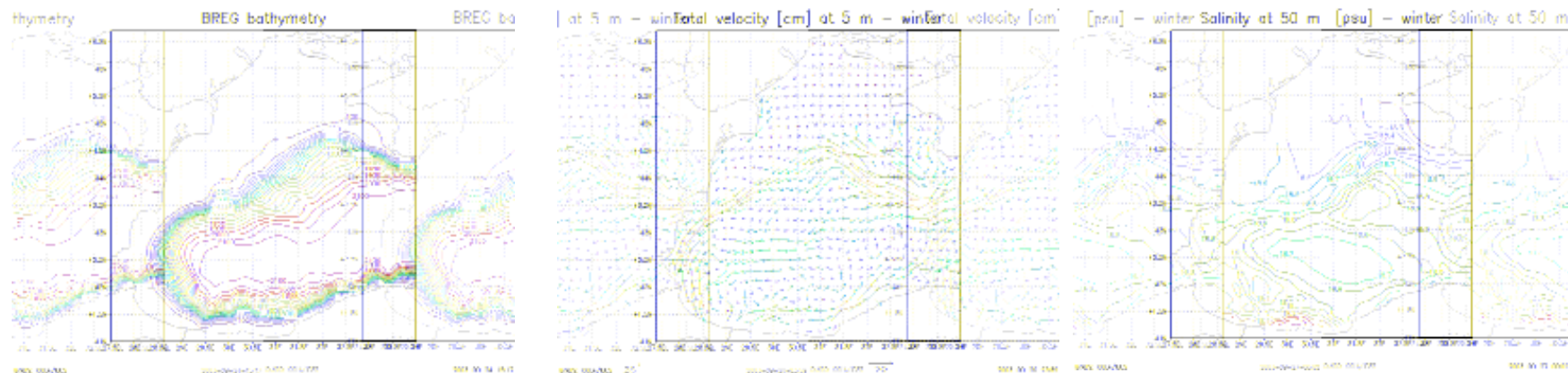


CARTOGRAPHICAL SUPPORT

Orthophotoplans

RESULTS

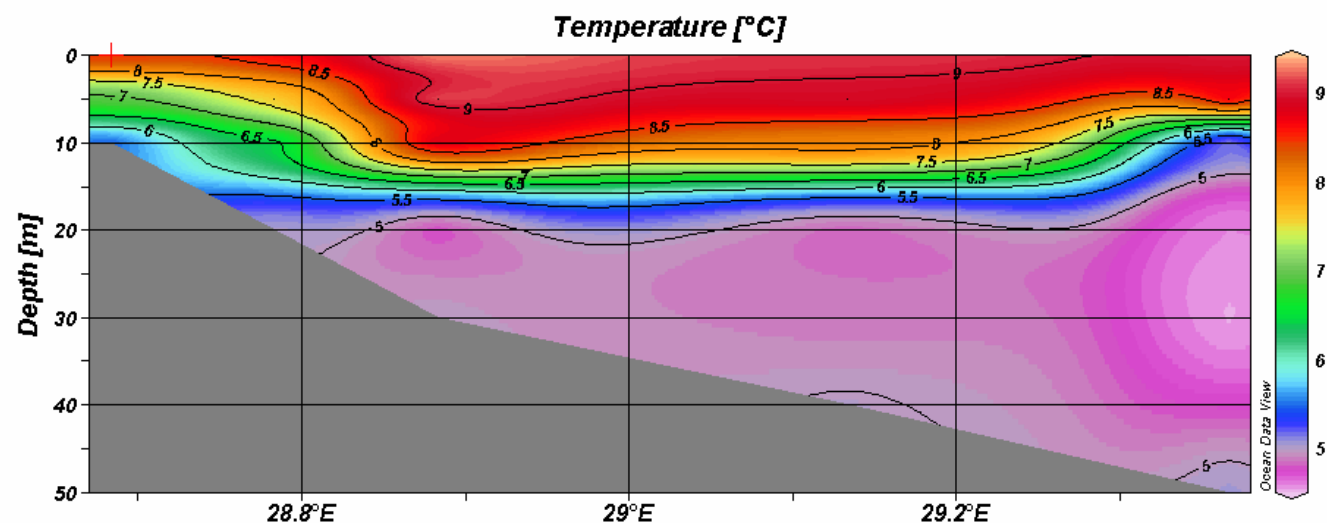
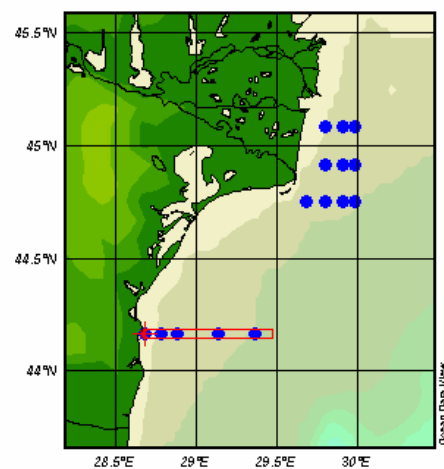
Model Bathymetry (1/16° resolution)



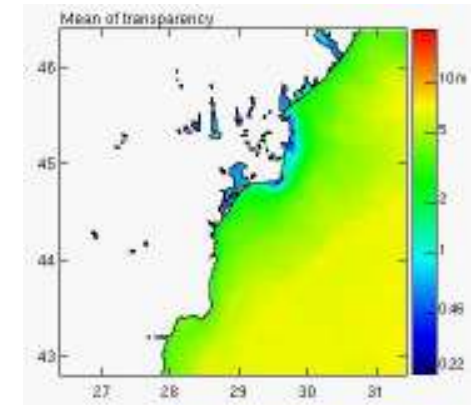
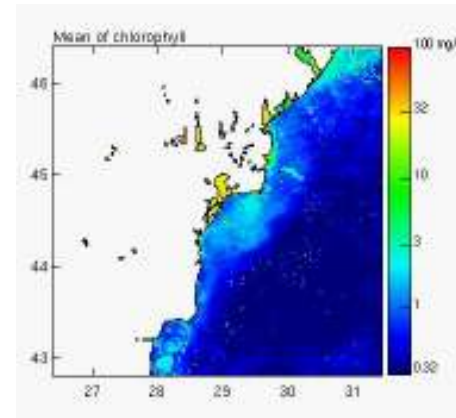
[15/15] 1: A1-2006 CT 1 B Apr/16/2006 00:00 28.683°E/44.167°N [0 - 10] 10m 3

#	Depth	Temper	Salini	Oxygen	Phosph	Silica	Nitrat
1	0.00	8.57	16.53	302.30	0.05	9.50	9.92

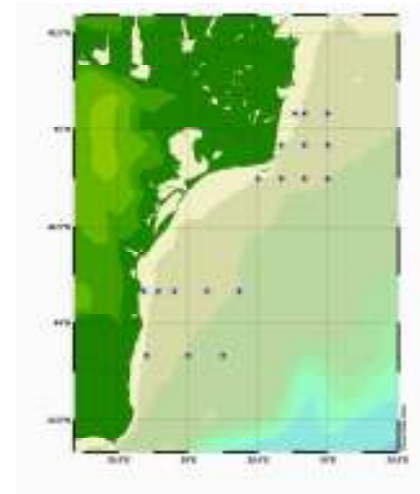
Profil Est Constanta



Monitoring Network



- Chlorophyll a - *Modis-Aqua* - Transparency -



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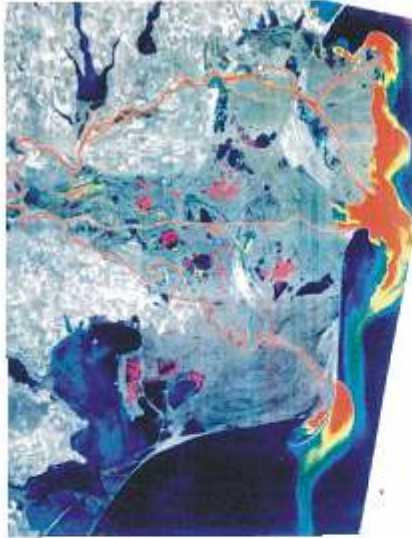
terrestrial impact areas

Main Causes of Coastal Erosion

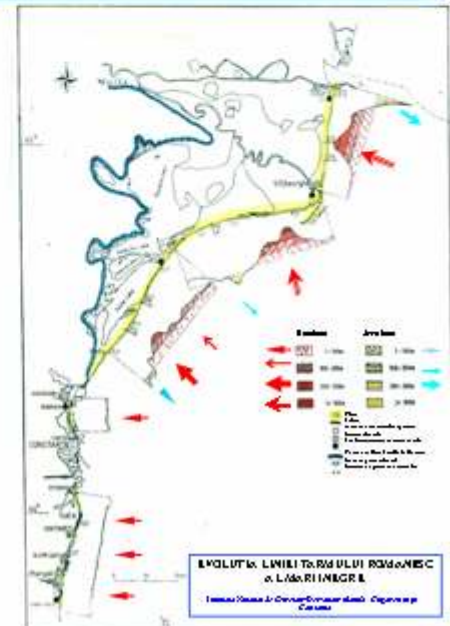
SHORELINE SURVEY NETWORK



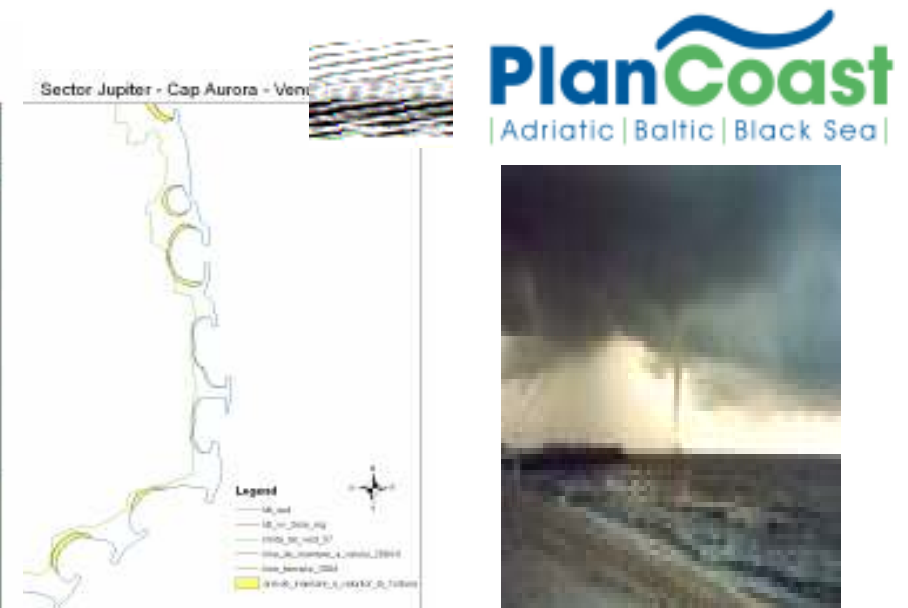
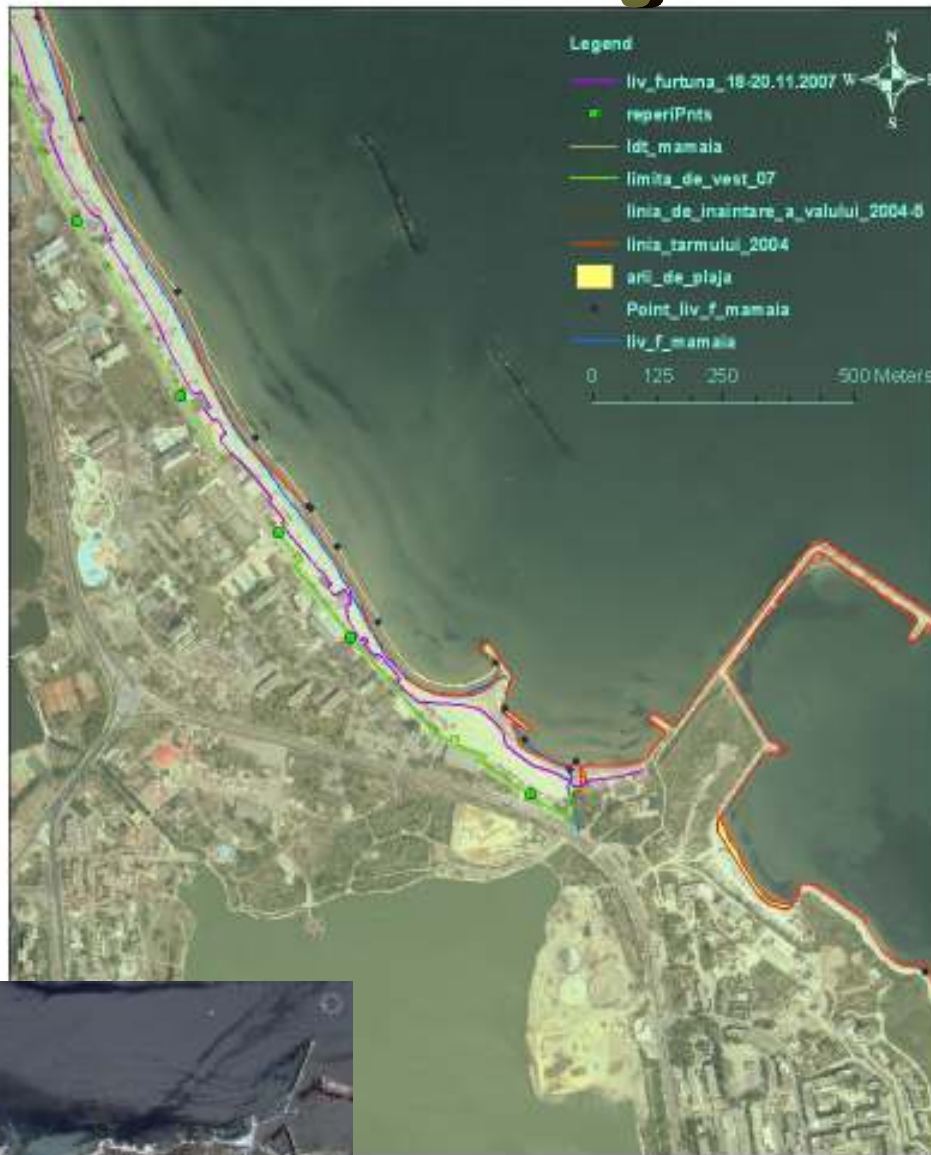
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Adriatic | Baltic | Black Sea |



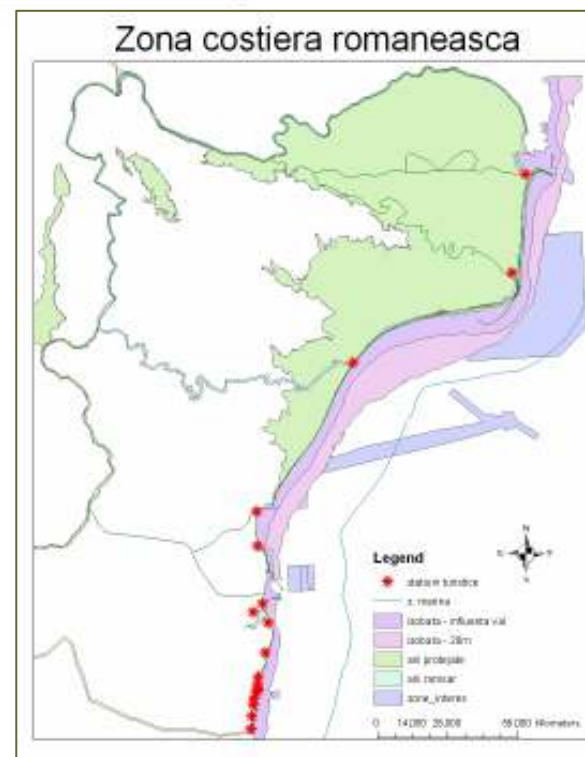
The Romanian Shoreline Changes between 1962/1981-2003



Limits of wave during storms

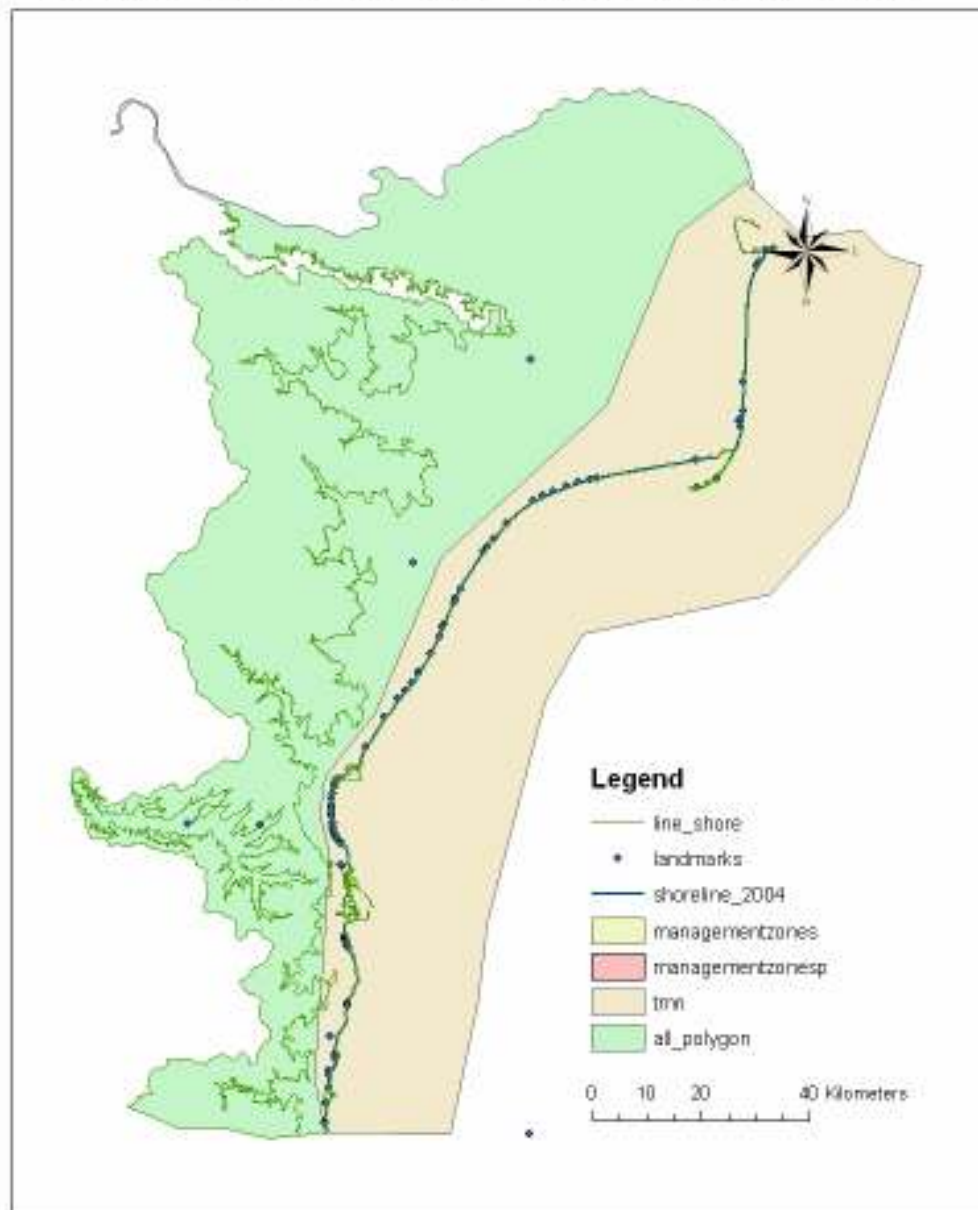


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Romanian Coastal Zone - Monitoring Landmarks



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MAPS

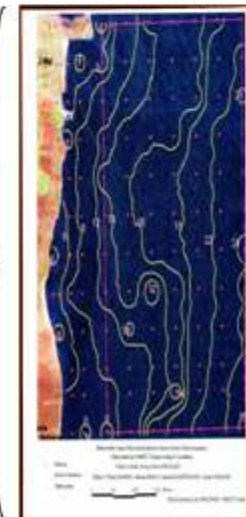
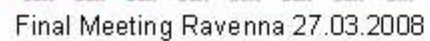


Coastal LINE
iton area / sector

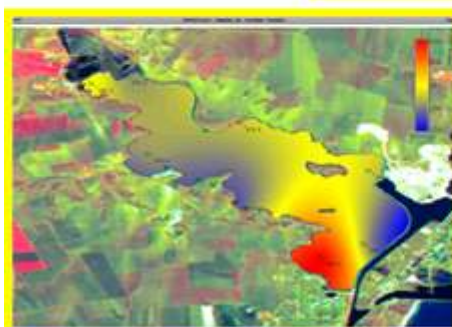
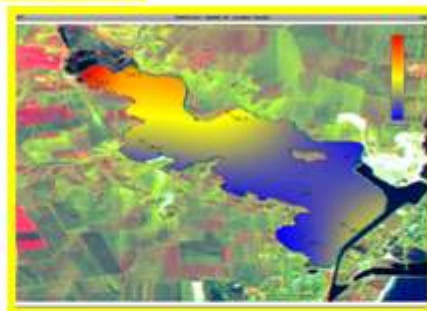
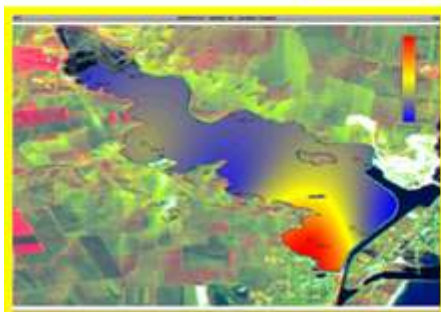
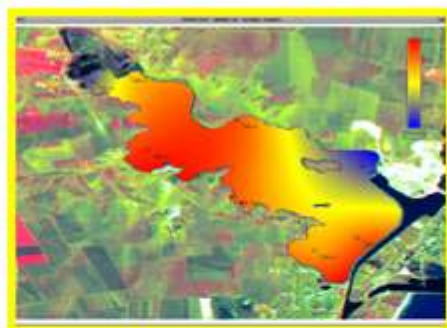
MASTER-PLAN



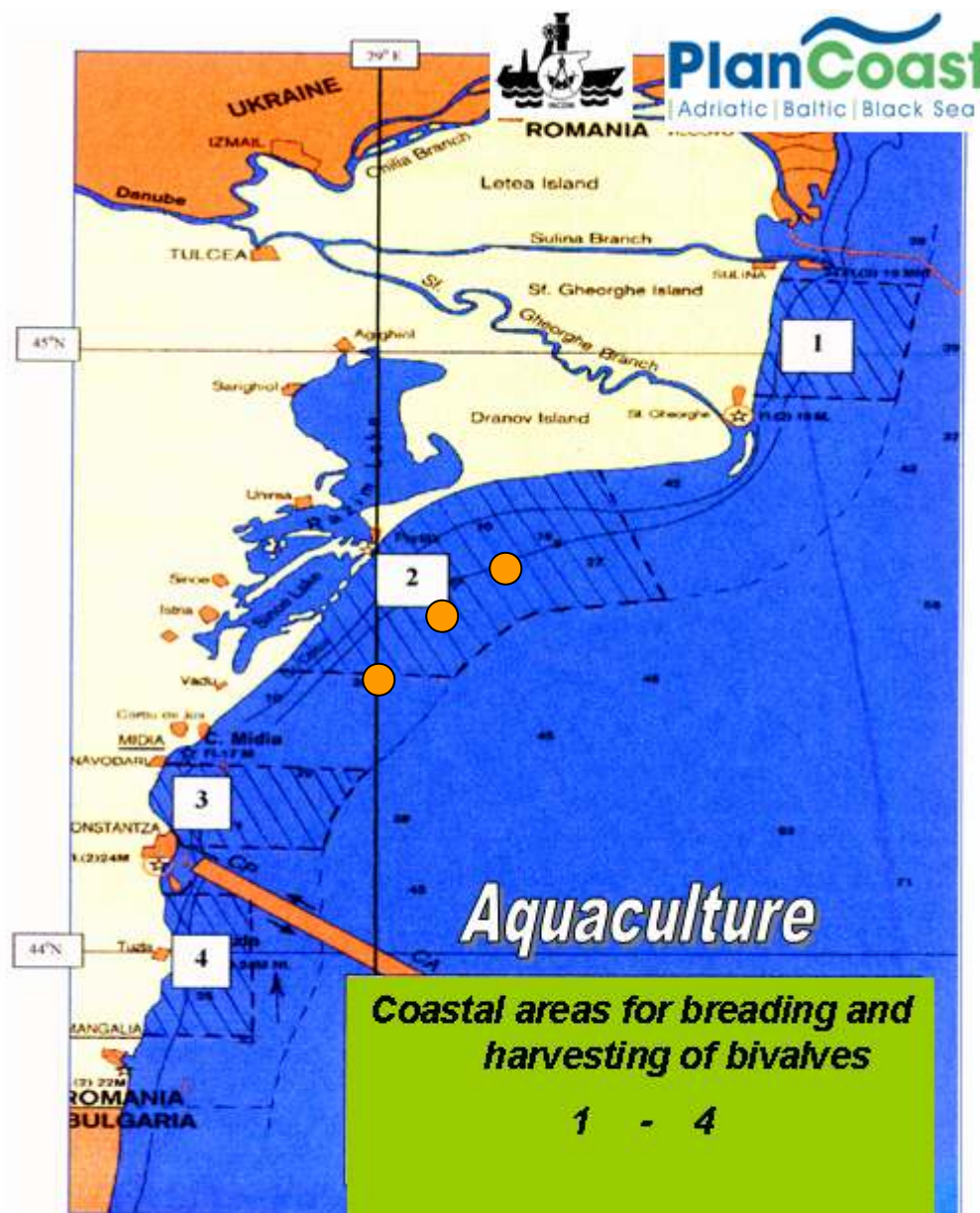
VamaVeche - 2 Mai



Coastal Lakes

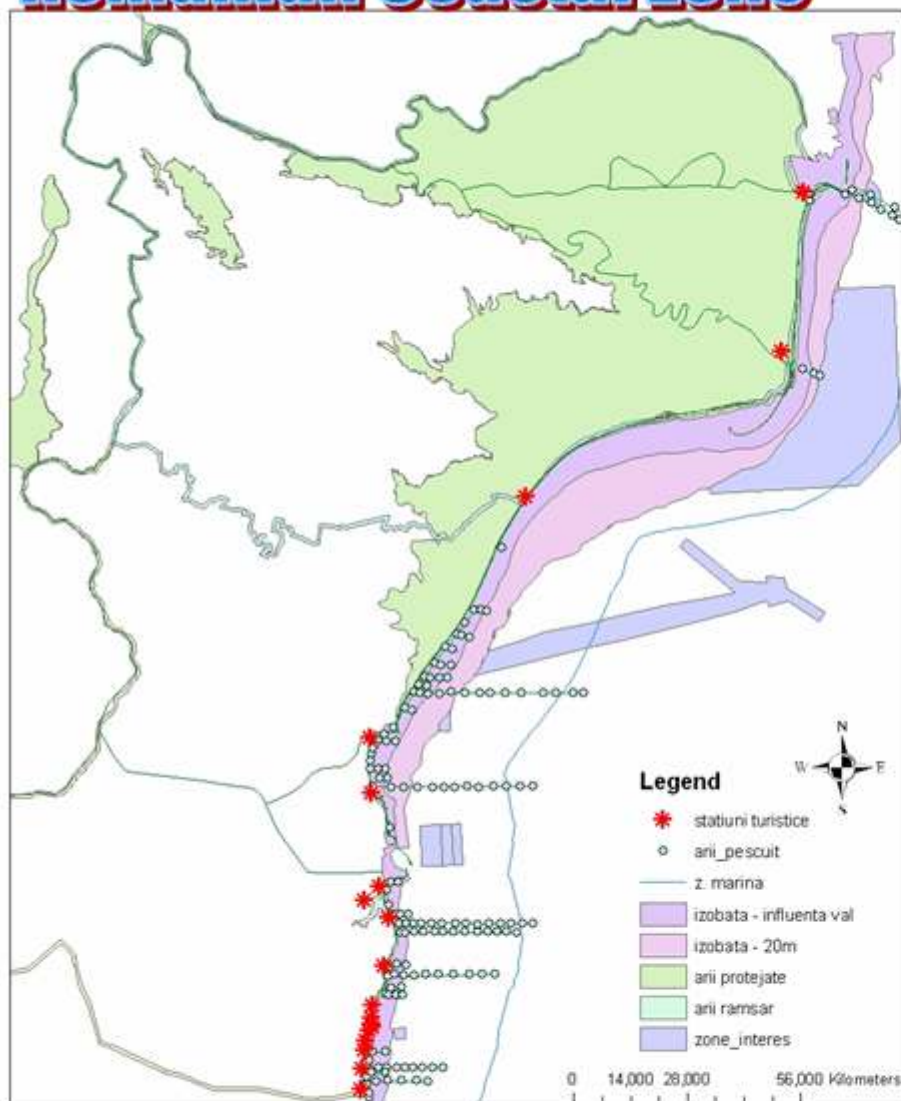


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Mussel cultivation areas planning

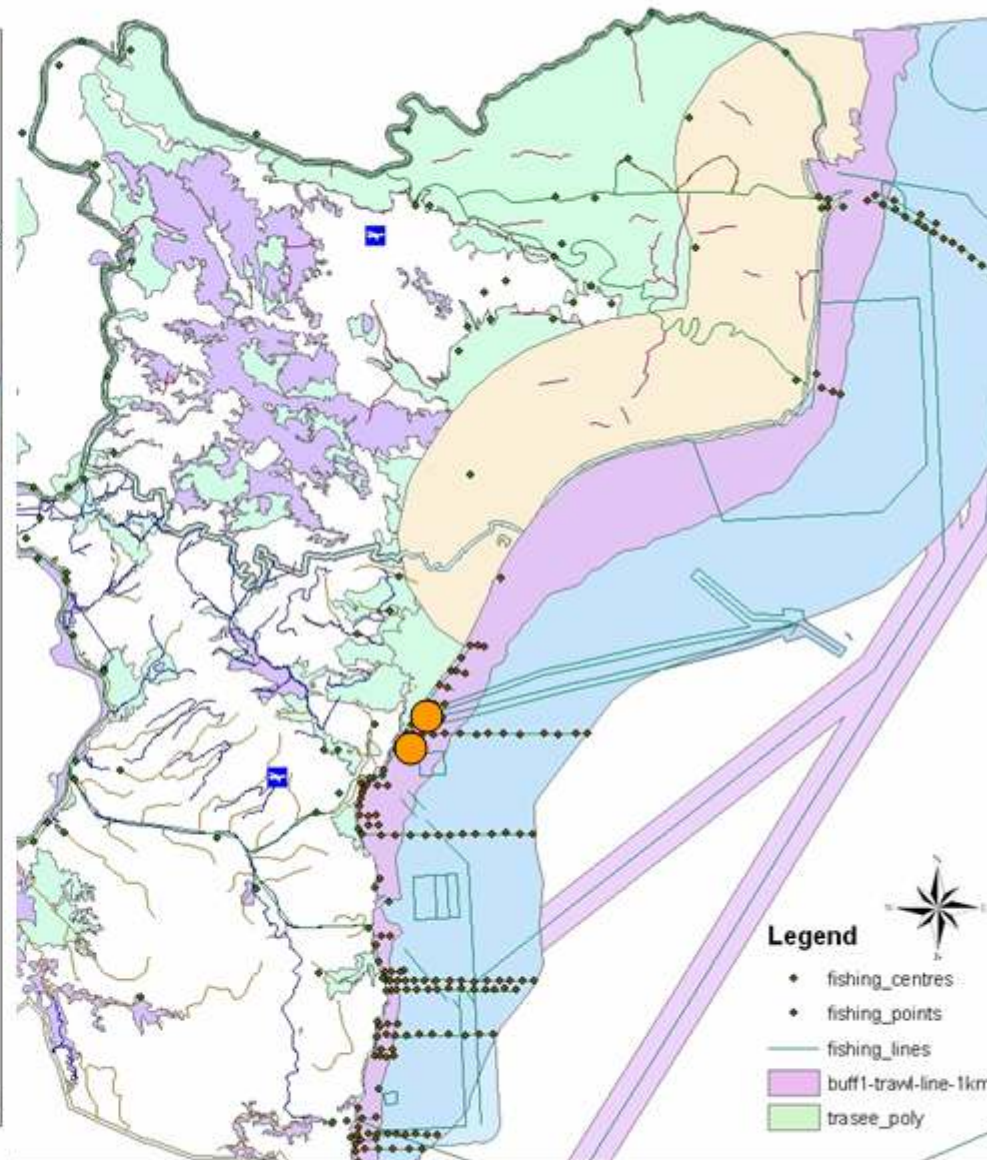
Romanian Coastal Zone



Urban Settlements

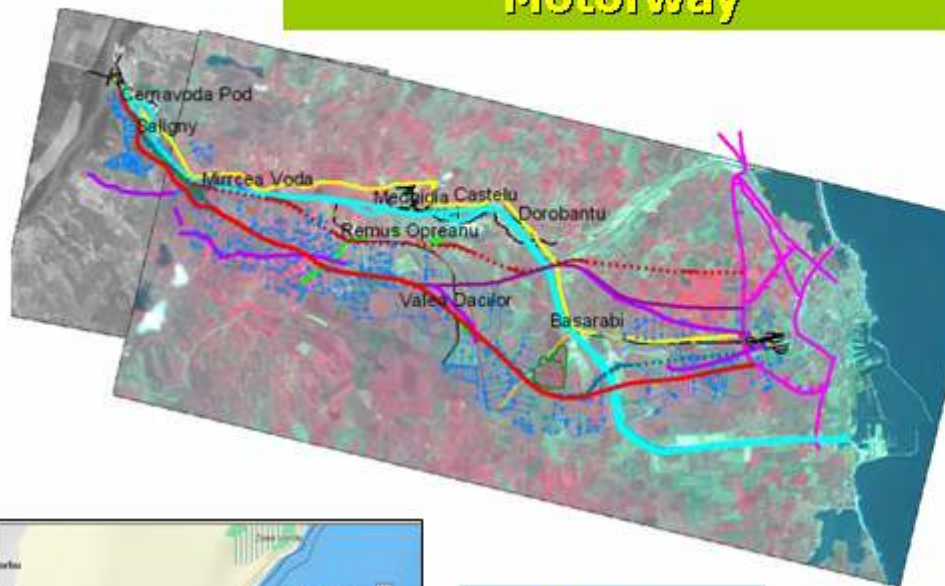
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Roamanian Coastal Zone - Fishing & Fisheries

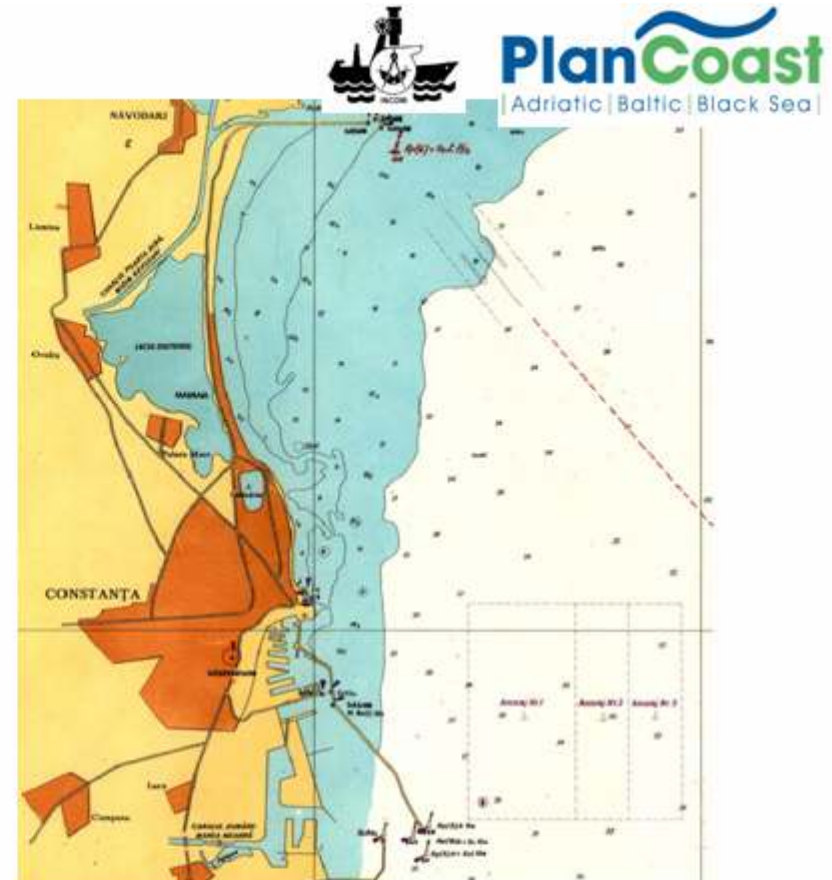
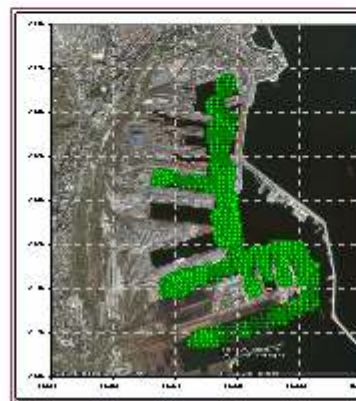


Thematic Maps

Cernavoda – Constanta Motorway



Cruises planning



CONSTANTA

Pilot Location





SUSTAINABLE DEVELOPMENT PRIORITIES

***(by Local Plan for Sustainable Development of
Constanta Municipality)***

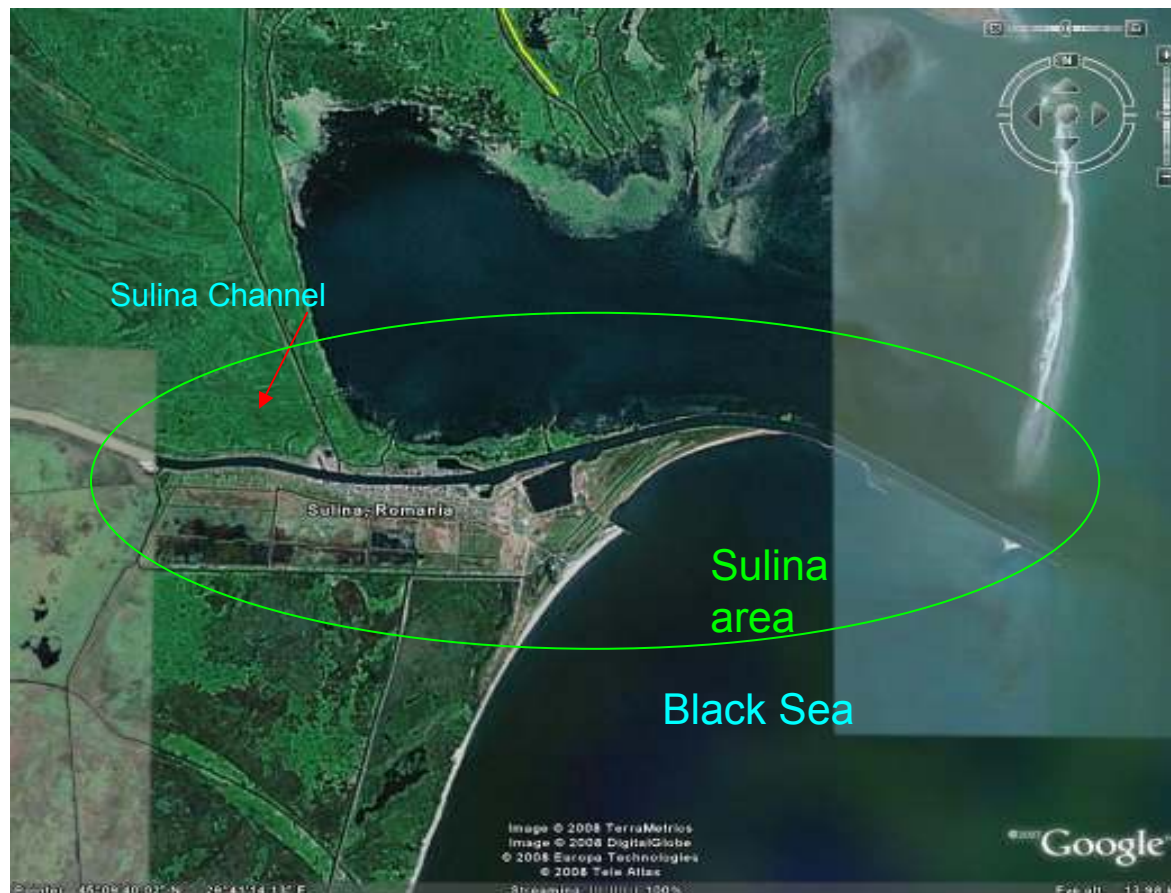
- Increase of competitiveness of production sector
- Development of tourism and tertiary sector
- Ensuring a long term increase in revenues
- Improvement and development of the transportation, telecommunication and energy infrastructure
- Development of anthropic resources, increase in the employment rate and control of social exclusion and social imbalances
- Progressive alignment with European Union environmental standards, which will be completely implemented by the year 2017

SULINA

Pilot Location

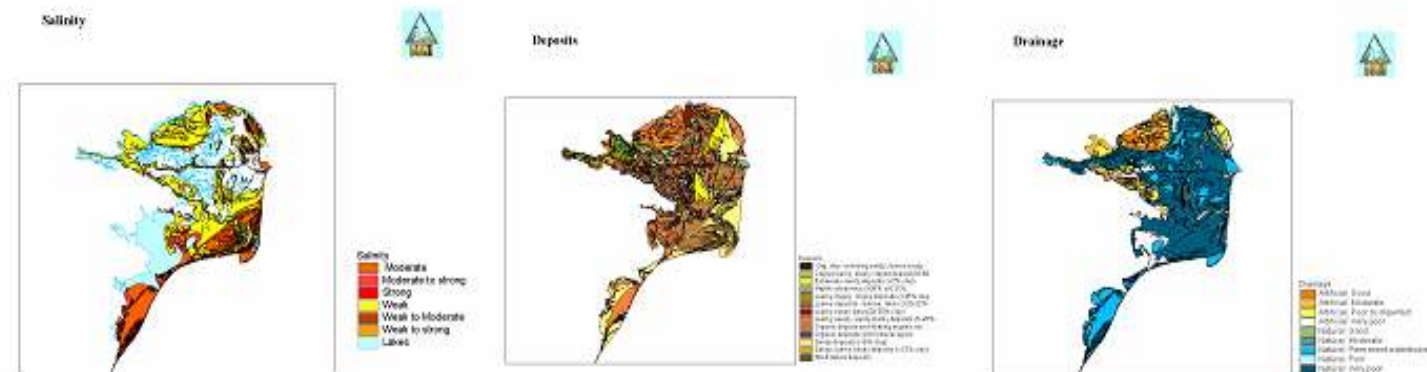
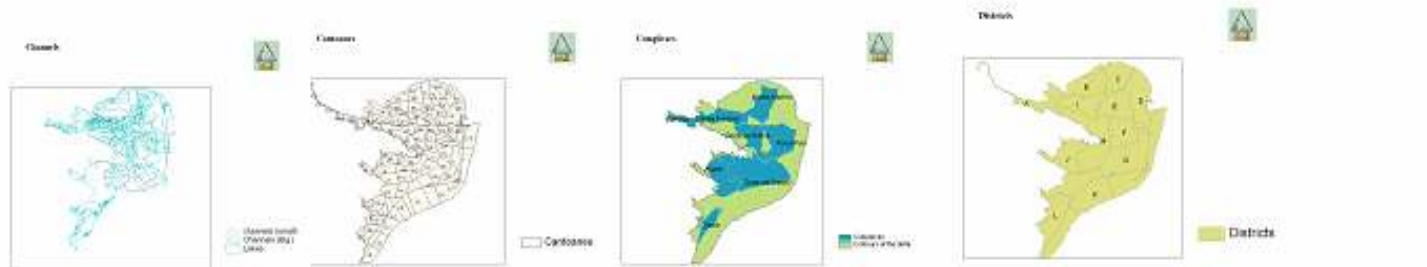


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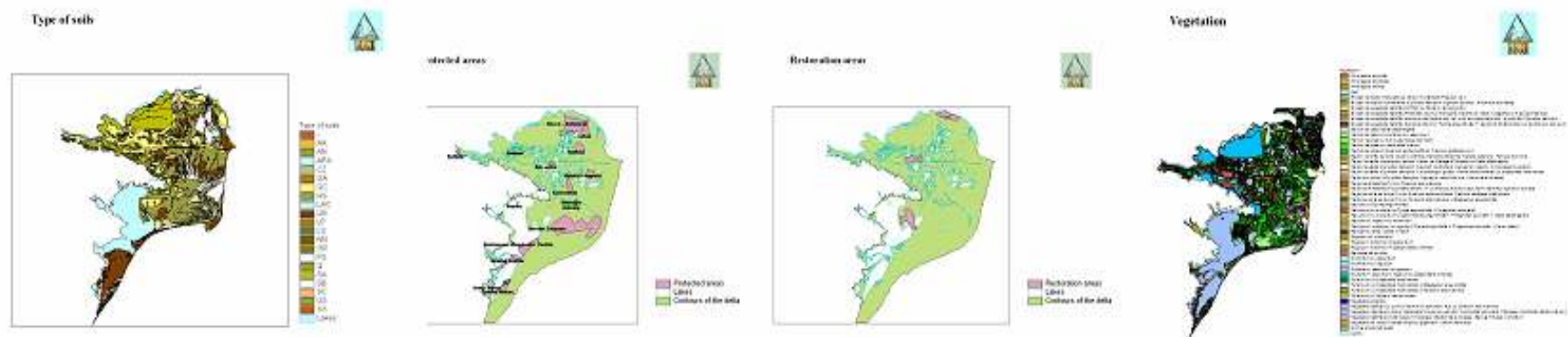


***Dinamics
of coastal areas
changes***

Needs for Crossborder cooperation



ArcView

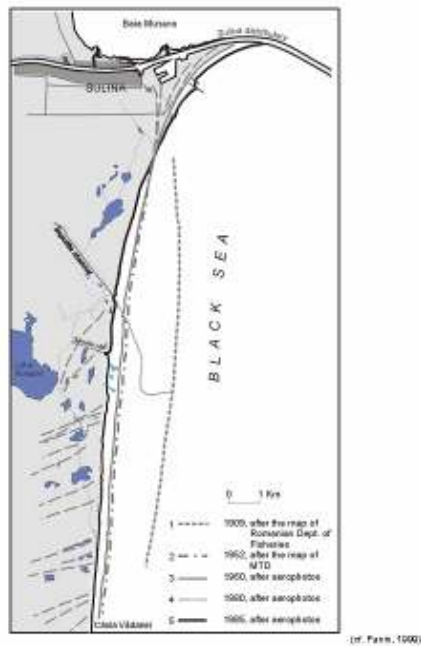


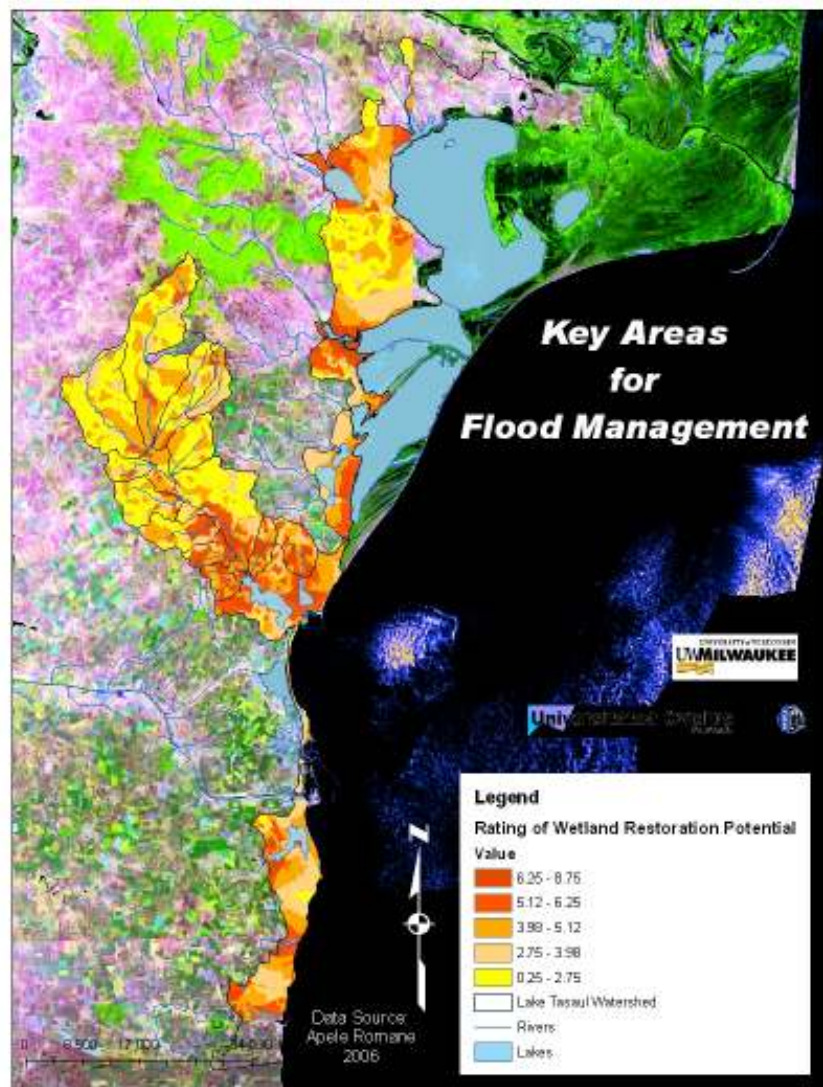


Pilot Location **SULINA**



The coastal line regression in the last century in the Sulina – Cioba Videni section of the Danube
Delta Northern Unit





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RISK'S FACTORS

areas of instability

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FACTORS FOR RISK on the field



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coastal erosion



floodings

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strong winds and unstable winters



Uncontrolled Urbanization



micro or macroalgae bloomings



human impact



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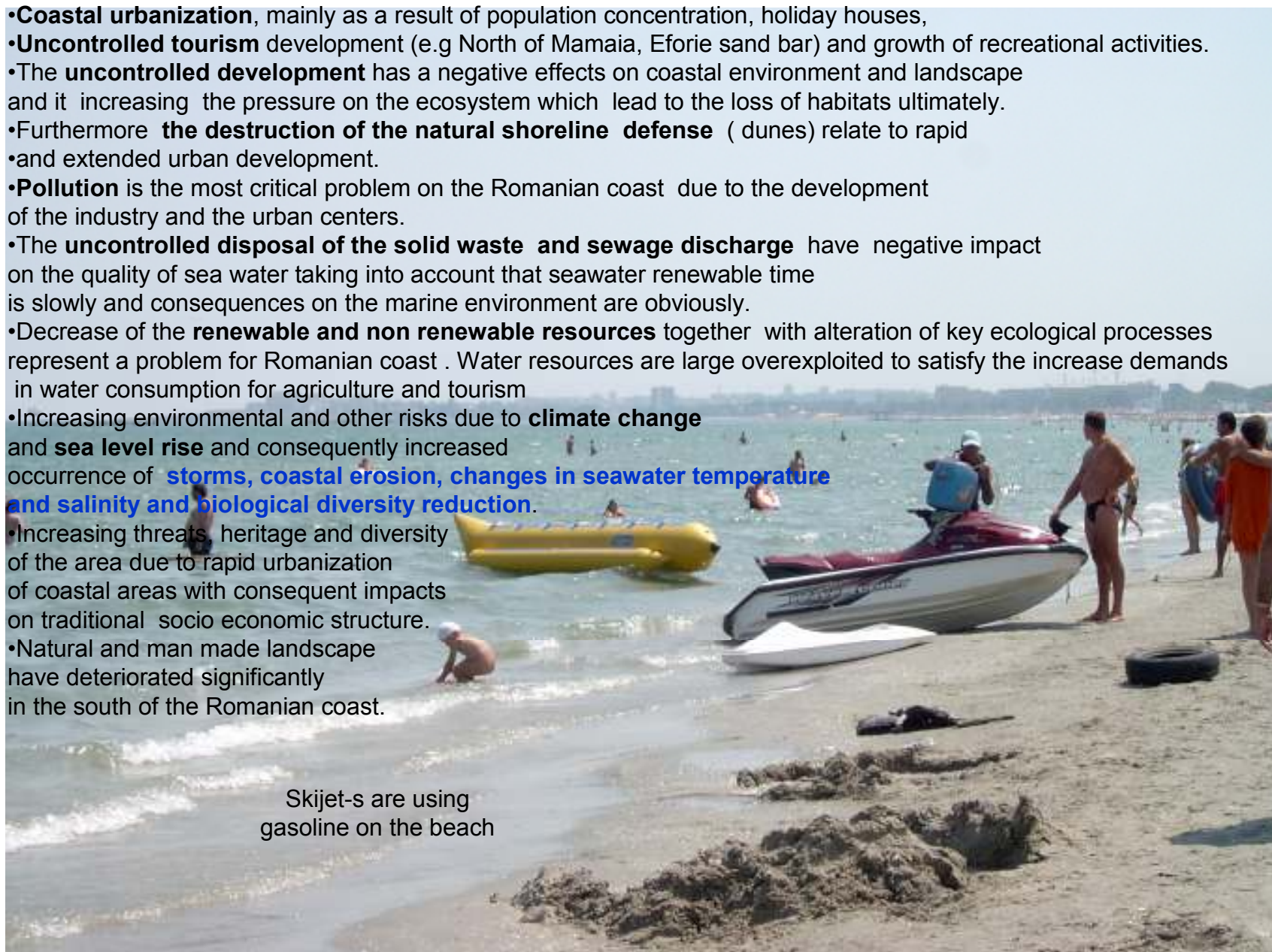


The main threats



- **Coastal urbanization**, mainly as a result of population concentration, holiday houses,
- **Uncontrolled tourism** development (e.g North of Mamaia, Eforie sand bar) and growth of recreational activities.
- The **uncontrolled development** has a negative effects on coastal environment and landscape and it increasing the pressure on the ecosystem which lead to the loss of habitats ultimately.
- Furthermore **the destruction of the natural shoreline defense** (dunes) relate to rapid and extended urban development.
- **Pollution** is the most critical problem on the Romanian coast due to the development of the industry and the urban centers.
- The **uncontrolled disposal of the solid waste and sewage discharge** have negative impact on the quality of sea water taking into account that seawater renewable time is slowly and consequences on the marine environment are obviously.
- Decrease of the **renewable and non renewable resources** together with alteration of key ecological processes represent a problem for Romanian coast . Water resources are large overexploited to satisfy the increase demands in water consumption for agriculture and tourism
- Increasing environmental and other risks due to **climate change** and **sea level rise** and consequently increased occurrence of **storms, coastal erosion, changes in seawater temperature and salinity and biological diversity reduction.**
- Increasing threats, heritage and diversity of the area due to rapid urbanization of coastal areas with consequent impacts on traditional socio economic structure.
- Natural and man made landscape have deteriorated significantly in the south of the Romanian coast.

Skijet-s are using
gasoline on the beach



FURTHER STUDIES

Economic impact of erosion on shoreline communities.

Impact of rising sea levels on coastal regions.

Evidence of coastal erosion impact in prior geologic periods.

Influence of factors such as current direction, water temperature, salinity, weather patterns, erosion control, vegetation influences, and human processes.

Inquiry directions for investigation of erosion:

- weather patterns - temperature, wind velocity, pressure, storm patterns
- geologic patterns- rock sources, glacial influence, coastal construction
- tectonic patterns - action/inaction of existing faults
- wave energy patterns - increases/decrease and influence on sand loss
- wave direction and current - changes and patterns
- water quality and pollution - changes
- human intrusion - attempts at reversing trends

Studies associated with other hazards having as aim different National Plans elaboration:

Earthquake management plans,

River flood plain management,

Toxic waste spill response plans,

Insecticide impact plans,

Biotechnology hazard release into the community,

Chemical hazard to a community e.g.,

Drought preparedness, desertification, and land degradation,

Climatic changes (global warming),

Dealing with the ozone hole,

Volcanoes, assessment and mitigation of hazard,

Landslide and mudslide risk assessment,

Tornadoes,

Tsunamis,

Nuclear power plants,

Health hazards related to exposure to different other agents,



Results dissemination



- **NATIONAL COMMITTEE FOR COASTAL ZONE (NCCZ)**
- **PERMANENT TECHNICAL SECRETARIAT OF NCCZ**
- **MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT**
- **MINISTRY FOR DEVELOPMENT, PUBLIC WORKS AND BUILDINGS**
- **DANUBE DELTA BIOSPHERE RESERVE ADMN.**
- **LOCAL AUTHORITIES: MUNICIPALITIES**
- **NATIONAL WATER ADMINISTRATION (DADL)**
- **EPA (CONSTANTA AND TULCEA)**
- **LOCAL COMMUNITIES**
- **PROFESSIONAL COMMUNITIES**
- **SCIENTIFIC COMMUNITY**
- **REGIONAL COOPERATION ORG.**



Results dissemination



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FOLLOWUPS



As an urban settlement is not closed system, but an entity which requires a management system aimed at **urban development, the strategic urban planning** will be carried out the following principles:

- **Strengthening of institutional capacities** by effective management, defining and restructuring of public services according to current financial resources, the sustainable development objectives and the demands of the community;
- **Connecting the municipality to a network** which provides information about municipalities' best practices (in urban or project management);
- **Vertical and horizontal integration** of policies aimed at developing the city, as well as at the development of the county and its surrounding areas;
- **Sustainable architectural protection** by which one establishes regulations regarding construction materials, building architecture, bio climate, density of buildings in a certain areas, green space surrounding buildings, microclimate, efficiency of use energy;
- **Establishment of regulations for rational use of lands** in all development projects of the Urban Management Plan, as an instrument for space planning;
- **Analysis of the technical execution capacity**



