The Bulgarian Black Sea Coastal Atlas (BULGCOAST Atlas) – developments and forthcomings

Hristo Stanchev
Institute of Oceanology – Varna
Bulgarian Oceanographic Data Center (BGODC)
The main objectives of the currently developed BULGCOAST Atlas are to:

- Foster sharing and using of geographically-linked spatial information on marine and coastal features along the Bulgarian part of the Black Sea coastal zone.
- Provide coastal and marine data available to general public.
- Improve public access to coastal information to help and support different authorities, institutions and stakeholders in coastal zone management.
The Bulgarian Black Sea Coastal Atlas has been developed at the Institute of Oceanology – Bulgarian Academy of Sciences (hosted BGODC).

• BULGCOAST Atlas was initially generated as a part of the BGODC initiative and it has been developed with financial support of SIBEMA Project (Scientific and Institutional Capacity Building for Implementing European Marine Policy in the Black Sea Region).

• ESRI ArcInfo 9.1 (Desktop); ESRI ArcSDE 9.1 and ESRI GIS Server software have been provided at the Institute of Oceanology.

• In addition, topographic and nautical maps in different scales (1:100 000; 1:25 000; 1:5 000); Colortrac SmartLF Cx40 Scanner and HP DesignJet 5500 printer 42 RTL were obtained.
• CTD data for T-S from field surveys (ship cruises)

• Geomorphic typology/classification of the Bulgarian Black Sea coast: erosion sections/sandy beaches/coast-protection structures

• Satellite SST and Chla Level 3 Products

• Census data for population in 14 Bulgarian Black Sea coastal municipalities and whole catchments area for the period 1934-2001

• Photos of coastline and port/coast-protection structures along the Bulgarian coast are available for viewing and can be directly downloaded from the Web Coastal Atlas site.
Main contributors to spatial marine/coastal data gathering in Bulgaria:

✓ - Water Basin Directorate – branch Varna (Ministry of Ecology)
✓ - Cadastre Agency – Ministry of Regional Development and Public Works
✓ - Navy Hydrographic Service
✓ - National Institute of Meteorology and Hydrology – BAS
✓ - Institute of Fisheries and Aquaculture – Varna
✓ - Institute of Oceanology – BAS
Wide target audience will benefit from the implementation of the BULGCOAST Atlas

- scientific/research coastal community in Bulgaria and outside, such as universities, oceanographic and coastal institutes/laboratories
- environmental agencies
- governmental and municipal authorities
- civil protection authorities
- coast-protection agencies
- local communities/owners
- decision-makers
- stakeholders

ICAN 4th Workshop
Trieste, Italy, 16-20 November 2009
BULGCOAST Atlas... Data and cartographic information included

• Geographic Area: Bulgarian Black Sea catchment’s area, coastline, internal waters, territorial waters, contiguous zone and exclusive economic zones (EEZs)

• Number of Datasets: Variable

• Topics:
  ■ Hydrology
  ■ Biology
  ■ Fisheries, Aquaculture
  ■ Coastal Habitats
  ■ Coastal Geomorphology and Geology
  ■ Imagery
  ■ Human Impact
  ■ Tourism & Recreation
  ■ Culture & Heritage
  ■ Infrastructure
  ■ Socio-economic data
  ■ Natural Resources
  ■ Environmental Monitoring

ICAN 4th Workshop
Trieste, Italy, 16-20 November 2009
- Costs
  - Intellectual Property Rights (IPR)
  - Data use restrictions
  - Price restrictions

- Accessibility
  - Limited GIS-ready data
  - Inaccessible data
  - Data sources and acquisition

- Quality
  - Inappropriate data scales
  - Non-existent metadata
  - Variable data quality
Lack of funding sources for WEB Atlas generation and maintenance;
Lack of common spatial data standards and harmonised data management between different institutions responsible for the Bulgarian Black Sea coastal zone;
Lack of common agreements for sharing spatial data between institutions involved in data gathering;
Lack of qualified staff at the IO-BAS

Main challenges:
Only a few projects have been published until now throughout the GIS Server under the BGODC database. However, there are many other GIS-layers existing in IO-BAS geodatabase, that cover different coastal and marine topics and they have to be published online during the next year in order to start BULGCOAST Atlas.
GIS layers to be included: **COASTAL CLASSIFICATION**
GIS layers to be included  Catalog of Topographical and Nautical maps
**Natura 2000** is the EU network of sites designated by Member States under the

**Birds Directive** (EEC/79/409 directive) signed in 1979 (Special Protection Areas = SPAs) and under the

**Habitats Directive** (EEC/92/43 Directive) signed in 1992 (Special Areas of Conservation = SACs).

GIS layers to be included

Low-laying territories identified along the Bulgarian coast
GIS layers to be included  BOTTOM SUBSTRATE TYPOLOGY
GIS layers to be included

Satellite SST&Chla Level 3 Products

MODIS AQUA LEVEL 3, Chlor_daily
29.05.2009

MODIS AQUA LEVEL 3, SST4mm_daily
07.06.2003
Proposal: Towards a European Coastline Classification Based on GIS Standards Infrastructure for Assessment of Coastal Zone Risks” (COASTCLASS)

- The long-term objective of the COST Action: to develop a European universal coastal classification hierarchy, based on the utilities of GIS for global scale appreciation of risk zones and a more comprehensive perception of the interrelations between natural and anthropogenic variables in the coastal zone.

The specific objectives of the COST Action:
- To establish a classification methodology for the development of a single pan European coastal classification system
- To promote coastal data standardisation with help of GIS in the context of INSPIRE Directive
- To identify coastal indicators for natural and anthropogenic hazards
- To generate a Coastal Classification Atlas for a number of test coastal areas with high priority of risks
- To contribute to coastal zone hazards assessment
COST (ESF) INITIATIVE: DELIVERABLES

- Common coastline classification criteria and harmonised coastal datasets based on the GIS infrastructure
- An integrated and systematic European coastline classification, supported by the GIS framework as an open-ended system, flexible and dynamic in terms of continuous updating
- Digital Europe-wide Coastal Atlas providing the primary base for risks zones assessment
- A web site giving an online access to the project activities and outputs
COST (ESF) INITIATIVE: WGs and Partners involved

- WG1-Coastal processes and landforms
- WG2-GIS data management
- WG3-Coastal risks mapping
- WG4-Web design and maintenance

The following 15 COST countries, involving more than 40 researchers from different organisations, have actively participated in the preparation of the Action or have indicated their interest to participate:

- Bulgaria
- Estonia
- France
- Greece
- Italy
- Ireland
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Spain
- Sweden
- Turkey
- United Kingdom

It was expected that more participants from other COST countries will be involved in the Action. Wider involvement will be actively encouraged to ensure coverage of potential region-specific coastline objects and peculiarities across Europe for incorporation into one classification scheme.

ICAN 4th Workshop
Trieste, Italy, 16-20 November 2009
THANK YOU FOR ATTENTION, QUESTIONS and ADVICE