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Newsletter no.8

Sources Of Pollution in Russia

Project title: *''Leave your Environmentalist Spirit Online for the Black Sea Basin'' - Spirit BSB online*

The project consortium consists of 4 parteners:
LP Coordinator - ***Association for the Protection of Human Being and Environment for a Sustainable Development in the World-ECOM, Romania***
P1- ***Sinop University, Sinop, Turkey***
P2-***Chamber of Agriculture of Trabzon, Turkey***
P3-***International Center for Social Research and Policy Analysis in Tbilisi, Georgia***.

According to the Project Implementation Plan, within the activity ***T2.1 Development of "Pollution and solutions in BSB - Manual for everyone"*** we made a manual. This manual contains several topics. Through these newsletters we present these topics. Today we choose to present you:

Sources Of Pollution in Russia

- Reducing Pollution on the Black Sea Coast
- Researchers use GIS to monitor and estimate water quality and pollutant concentration.
- GIS streamlines analysis and planning for an improved sea environment.
- ArcGIS helps decision makers resolve
- the pollution problem in the Black Sea.

Marine pollution has been a concern for a long time, but during the last decade, the issue has become more pressing as human influences have exacerbated the problem and vast ecosystems have been affected. It is no longer a local or regional matter; it is a major international problem that must be addressed with a systematic approach.

Fig.1 Map of the Black and Azov seas, which is structured as separate layers: cities, rivers, seas, forests, roads, borders, railways, etc.

A Vast Ecosystem in Danger

Seas inside and surrounding Russia have intensive anthropogenic loading, in water and as a result of industrial activities near catchment basins. The main sources of pollution are river drainage, sewage, and water transportation.

Pollution in the Black Sea is particularly worrisome. There are dire ecological consequences to deal with because of chemical, physical, and biological pollution.

The Black Sea's deep waters do not mix with the upper layers of water that receive oxygen from the atmosphere. These hydrochemical characteristics, along with the Black Sea reservoir's climatic features and social/economic impacts of its use, influence the character of shelf vegetation, its vertical and horizontal distribution, and specific structure. Policy makers within the Russian Federation need accurate, up-to-date spatial data to be able to make informed decisions about water resource management.

There are many factors that influence the ecology of water bodies, and GIS makes analysis and planning for an improved sea environment easier with its visualization capabilities. Analysts at St. Petersburg Electrotechnical University are using ArcGIS software for data management, to create thematic maps, and to support stakeholders in decision making as they administer marine policies. They have developed a system for monitoring and estimating water quality that facilitates managing large amounts of data for mapping and analysis. This helps organizations set pollution standards and conduct appropriate wildlife management.

Developing the System

The process for creating the system to estimate water conditions uses ArcInfo software. The GIS contains the following:

-Basemap, which includes cities, rivers, seas, forests, roads, borders, and railways

-Geodatabase of the ecological situation, including observation posts on the Black Sea, a table of pollutant concentrations, and a table of maximum ermissible concentrations of pollutants.

To estimate water quality, analysts compare data from observation posts with a control and calculate water characteristics using specific criteria. They can process large amounts of data to estimate when a specific observation post will exceed the maximum permissible concentrations of a pollutant.

The analysts use this process to determine the changes in substance concentrations in the coastal area of the Black Sea. Values of a maximum concentration level are used as a

measure of a water body's impurity.

Monitoring the Black Sea's Water Resources

The researchers discovered rather high concentrations of pollutants along the coasts of Sochi, Hosta, Adler, and Gelengic. Over time, the level of pollutants, such as hydrocarbons, stabilized and didn't exceed 0.03 mg/l in the ports of Anapa, Novorossisk, and Gelengic. The maximum concentration values in these three ports were lower than in 2000; in the port of Tuapse, they were two times higher; and in the port of Sochi, they were approximately the same value. All the average and maximum concentration surface-active material in the coastal zone from Anapa to Sochi for the last five years did not exceed the limit of 25 mkg/l.

For more informations please visit our website https://www.spiritbsb.online/.

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