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Pollution Monitoring of the Kazakh sector of the Caspian Sea.

Executive summary

In the frame of the EC TACIS project “Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern, (CaspianMAP)” the pollution surveys in the Kazakh sector of the Caspian sea were organized and executed by Kazakhstan Agency for Applied Ecology (KAPE), in cooperation with Kazhydromet and Analytical laboratory on Environment Protection (ALEP) of the Kazakhstan State Utilities Enterprise (KSUE), between 8th and 20th of September, 2008.

The main objectives of the expedition were:

- Indicate the main characteristics of water and bottom sediments in the potential impact areas of pollution sources, i.e. land based sources, as well as those located offshore
- Demonstrate capacities of the monitoring organizations and analytical laboratories in Kazakhstan, in order to establish an agreed cooperation for water quality monitoring in the Caspian Sea. And to assess the technical capacities and the required level of methodical provision, for the execution of future monitoring in the frame of the imminent regional monitoring program.

To achieve the mentioned objectives, a special sampling program was developed in the preparation phase, with the participation of the main organizations for future partaking in the regional monitoring program.

The expedition was executed with the scientific vessel “Elen” of the Kazakh Agency of Applied Ecology, “KAPE”.

Not only Kazakh experts, but also international ones participated in the expedition. The international experts were in charge of qualified execution of the procedures of sampling and sample preparation and training the participants. The following experts participated in the expedition:

1. Kuzmenko S. – leader of the group and deck works, key specialist of the sector of ecological sea surveys, Affiliation of “KAPE-Atyrau”
2. Bimagambetova A. – hydro chemist, ALEP, Atyrau
3. Bazahaeva Z. - hydro chemist, ALEP, Atyrau
4. Oralymbekov D. – hydrological group, Aktau
5. Sokolov S. – TACIS expert of bottom sediment sampling, CMSET
6. Denga Yu. - TACIS expert - hydro chemist, CMSET

And other staff of the team, which maintained all the duties at the vessel and stations of taking sampling.

The samples were taken at several locations, included historical sea sections in the territorial waters of Kazakhstan, coastal waters in the vicinity of port Bautino – port Aktau, and relatively shallow part of the north-eastern part of the Caspian sea.



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The expedition with the RV “Elen” was executed between the 12th and 17th of September. The following research was done on board:

- Complex of hydro-meteorological observations
- Changes of physico-chemical characteristics of sea water on the shipboard
- Sampling and conservation of the sea water samples for the following hydrochemical analysis at the coastal laboratory
- Sampling of bottom sediments, research of their composition, packing and storage of the samples in the in the freezer at the temperature – 15⁰ C.

Total amount of the sample stations is 15.

During the sampling the hydro meteorological observations were conducted, which included the following measurements: temperature, wind velocity and its direction, atmospheric pressure and weather conditions.

Water sampling was done in accordance with the methods used in the Analytical laboratory on Environment Protection in Atyrau. The samples were taken on two horizons, with the depth 0m and near-bottom, accordingly.

At sample stations the following parameters were measured: electroconductivity, pH, temperature, salinity and oxygen content.

The bottom samples were taken for fulfillment of the following chemical analysis on heavy metal, hydrocarbons content and radiation. Sampling was made at 15 stations.

At the moment of bottom sediment sampling, the following characteristics were defined: type, structure, presence of benthos organisms and other characteristics (visual observations). For the measurement of polluting elements composition, only silt and clay components were measured.

After completion of work, the RV “Elen” returned to the port Bautino, where packing, cleaning and transportation of equipment and participants, to Aktau were fulfilled.

After the successful fulfillment of the Tacis CaspianMap expedition in the Kazakhstan Sector, the participants of Kape, Kazhydromet, ALEP and the Tacis experts left Aktau between the 19th and 20th of September.

In follow up to the successful executed expedition, the regulations and programs of annual water quality monitoring in the Caspian sea will be developed, with the optimal list of sampling stations, basic sea hydrologic characteristics. This program will be suggested to the countries in the frame of a regional water quality monitoring program for the Caspian sea, as part of the caspianMap project.