



Institute of Biology of the Southern Seas, Ukraine

Established in 1871 as a small biological station, IBSS has at present three campuses along the coast (with the headquarter in Sevastopol), two State Reserves, and an Aquarium-Museum. The IBSS staff comprises 137 Ph.D. scientists, 80 engineers and a group of technicians. Two IBSS research vessels carried out over 150 expeditions to the Black Sea, the Atlantic and Indian Ocean.

The IBSS research deal with taxonomy, fisheries aquaculture, ecotoxicology, biotechnology, physiology, environmental impact assessment, radioactive processes, and modelling. The library stock represents a diversity of disciplines with 150 000 items including 75 000 in foreign languages and over 1000 rare books (published in 1766-1880).

In terms of the activity matching the EnviroGRIDS objectives, IBSS is involved in oceanographical database development, studies of the spatial-temporal structure, biological productivity, and physical-biological coupling in the pelagic and benthos marine ecosystems with regard to climate change. For example, the IBSS data bank has physical, chemical, and biological data on 157 research cruises to the Black and Mediterranean Seas.

The IBSS involvement in the international projects incorporates: SESAME, GODAR, Euro-GOOS , EUR-OCEANS, Science for Peace Program (NATO), INTAS and targeted cooperation programs with Amsterdam University, Stony Brook University, Woods Hole Oceanographic Institution (USA), and Plymouth Marine Laboratory (UK).

The project will essentially be implemented by:

- Dr. Alexandra Gubanova (Senior Scientist, Ph.D): Project coordination; Selection of data for the project and processing of zooplankton samples. Quality assurance of the plankton data sets (taxonomy). Writing papers (based on project materials) dealing with biodiversity changes of the Black Sea ecosystem.
- Dr. Sergey Piontkovski (Senior Scientist, Ph.D): Statistical data analysis; Basin scale data comparison. Writing papers (based on project materials) dealing with spatial-temporal changes of the Black Sea ecosystem with regard to climate change.

- Alexandra Sergeeva (Leading Engineer): IBSS database development. Incorporation of the archived physical, chemical, and biological data into the project database.
- Vladimir Gorbunov (Leading Engineer): Development of the interoperability for the IBSS data, facilitation of network access and sharing of data.
- Denis Altukhov (Leading Engineer): Data mining for the EnviroGRIDS models. Processing of zooplankton samples and taxonomical identification of species.
- Alexander Khvorov (Graduate student): Data entry. Training in oceanographic database development and the analysis of the spatial patterns in the Black Sea ecosystem.

Role in the project:

The main input of IBSS will be to the following generic technical objective of the EnviroGRIDS project within WP5 task: link, gather, store, manage and distribute key environmental data. The Black Sea plankton ecosystem will be investigated by the IBSS that has been involved in the Black Sea studies for over than 80 years and has the graet experience in the marine plankton research.

The IBSS team will focus on:

Analyzing large environmental data sets - seasonal and interannual changes of plankton biodiversity and hydrology in the Black Sea over the past 50 years with regard to the atmospheric anomalies and anthropogenic impact.

Developing a 50-year database on plankton surveys of the Black Sea available from IBSS archives;

Supporting the long-term time series of plankton sampling in the Gulf of Sevastopol.

The database assembly along with additional monthly physical and biological measurements (temperature, salinity, phyto- and zooplankton abundance) will serve the EnviroGRIDS aim to improve data access and use in the Black Sea catchment. As well, it will gradually compensate the lack of information on the basin-scale and interannual trends of the Black Sea coastal (regional) ecosystems. It will enable researchers to classify plankton ecosystems of the Black Sea on the basis of their spatial-temporal trends.

