Marine Hydrophysical Institute, National Academy of Sciences of Ukraine
Sergey Konovalov
During the first years of the Soviet Republic, in 1921, the Sovnarcom (the first Soviet Ministry Cabinet) issued the Decree on the creation of special 'Floating Marine Scientific Institute', the complex scientific centre promoting development of Soviet oceanography.

On 10th April, 1929, at the Black Sea coast near the settlement Katsiveli (the Crimea), the first in the world permanent hydrophysical station pioneered by V. V. Shuleikin was organized for systematic investigations of shelf processes.

The Marine Hydrophysical Institute was established in 1948 in Moscow on the basis of the Black Sea hydrophysical station of the USSR Academy of Sciences and the Marine Hydrophysical laboratory of the USSR Academy of Sciences (previously the department of the Institute of Theoretical Geophysics of the USSR Academy of Sciences).

V.V. Shuleikin, the Soviet scientist-oceanographer, Academician (the founder of the main tendencies in contemporary marine physical science, price-winner of the State Price of the USSR) became the first director of the Institute.

In August of 1961, the Marine Hydrophysical Institute (MHI) was affiliated to the system of the Ukrainian SSR Academy of Sciences, and in 1963 it moved to Sevastopol.

Since 1962 and until 1974, A. G. Kolesnikov, Academician of the Academy of Sciences of the Ukraine, price-winner of the USSR and of the Ukrainian SSR State Prices, led MHI. Under his guidance the staff of the Institute in a short time became one of the leading groups in the country in the fields of physical oceanography and automation of hydrophysical field experiments.


Since 1985 and until 2000, the Director of MHI is Professor Valery Eremeev, Academician of the National Academy of Sciences of the Ukraine, price-winner of Vernadsky' Price of Ukrainian Academy of Science.

Since 2000 and until now, the Director of MHI is Professor Vitaly Ivanov, Correspondent member of the National Academy of Sciences of the Ukraine.

After declaration of independence of the Ukraine, in 1992, the Marine Hydrophysical Institute formed the part of the National Academy of Sciences of the Ukraine.

In 2004 Marine Hydrophysical Institute will be 75 years.
MHI Departments

1. Dynamics of Oceanic Processes
2. Marine Climate Research
3. Marine Biogeochemistry
4. Marine Optics
5. Shelf Hydrophysics
6. Turbulence
7. Automation of Oceanographic Research
8. System Analysis
9. Marine Environmental & Information Technologies
10. Oceanography
11. Remote Sensing of the Sea
12. Atmosphere and Ocean Interaction
13. Theory of Waves
Monitoring of Oxygen and Sulfide
The carbon cycle in the Black Sea

Analysis of long-term changes in the carbonate system of the Black Sea
Voltammetric profiling of sediments

Voltammetric PEEK & Glass encased electrodes

100 μm diameter Au wire

O₂, Fe²⁺, Mn²⁺, H₂S, H₂O₂, I, S²⁻, S₄O₆²⁻, FeS₉₉, Fe(III) are all measurable in one scan, if present

Oxygen & Sulfide, μM

Depth, mm

Mn(II), μM

MnO₂, nM

O₂, Fe (III), H₂S uA

Fe (II), Mn (II), FeS uA

O₂

H₂S

Fe (II)

Mn (II)

FeS

Sulfide, μM

Nitrate, μM

Oxygen & Sulfide, μM

Depth, mm

The BHL
STN#07
STN#23
STN#19
STN#30
Modeling the biogeochemical structure

**Oxygen (O₂) & Sulfide (H₂S), µM**

- Oxygen (O₂)
- Sulfide (H₂S)

**Nitrite (NO₂⁻) & Sulfur (S⁰), µM**

- Nitrite (NO₂⁻)
- Sulfur (S⁰)

**Nitrate (NO₃⁻) & N₂ excess, µM**

- Nitrate (NO₃⁻)
- Nitrogen excess (N₂)

**Ammonium, µM**

- Ammonium (NH₄⁺)

**Nitrogen excess (N₂), µM**

- Nitrogen excess (N₂)

**Ammonium (NH₄⁺), µM**

- Ammonium (NH₄⁺)

**Oxic zone**

- O₂

**Suboxic zone**

- NO₃⁻

**Anoxic zone**

- NH₄⁺

**H₂S**

**O₂**

**NO₃⁻**

**NH₄⁺**

**N₂**

**O₂**

**NO₃⁻**

**NH₄⁺**

**N₂**
Observational data from 1910-2013

MHI is NODC of Ukraine: Information and data are available at http://www.ocean.nodc.org.ua/
Data processing and management
International & National activities

- Starting with CoMSBlack in 1990, MHI has been a partner/participant/leader of tens international projects (NATO SfP, NATO SfS, NATO CCMS, FP5-FP7, NASA USA, CRDF, NSF, EC INCO, GEF UNEP, COBASE NRC USA, etc.)
- National Atlas of Ukraine
- Oceanographic Atlas of the Black and Azov Seas
International projects

- EC 7th FP Directorate-General for Maritime Affairs and Fisheries: Preparatory actions for European Marine Observation and Data Network — Lot 3 — Chemistry (2013-2016, EMODNET Chemistry 2, MARE/2012/10-lot 4 — chemistry) — Partner

- EC 7th FP Directorate-General for Maritime Affairs and Fisheries: Preparatory actions for European Marine Observation and Data Network — Lot 3 — Chemistry (2009-2011, EMODNET, MARE/2008/03-lot 3 — chemistry — s12.531432) - Partner
International projects

- EC 7thFP Coordination and support action: Towards integrated European marine research strategy and programmes (2010 – 2014, SEAS ERA, #249552)

- EC 7thFP Area ENV.2009.2.2.1.4: Integrated Coastal Zone Management (2010-2014, PEGASO, #244170) Collaborative project: People for Ecosystem Based Governance in Assessing Sustainable Development of Ocean and Coast (PEGASO)
International projects

- EC 7th FP Area 6.4.1.2. ENV.2008.4.1.2.1. (2009 – 2011, HYPOX, #226213) *In situ monitoring of oxygen depletion in hypoxic ecosystems of coastal and open seas, and land-locked water bodies (HYPOX)*

International projects

- MyOcean & MyOcean 2
- SESAME
- ECOOP
- ASCABOS
- Black Sea GOOS
- NATO SfP ODBMS Black Sea project
- NATO SfS Black Sea project
- ...

Thanks for Your attention