

Program

XIV All-Russian Scientific and Practical Conference with International Participation for Young Scientists dedicated to the 185th anniversary of the births of A.O. Kovalevsky and V.N. Ulyanin “Pontus Euxinus 2025”

Program Committee:

Co-chairmen:

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Anastasia Tkachuk, IBSS RAS, Sevastopol, Russia

Anastasia Serbina, IBSS RAS, Sevastopol, Russia

6 October, Monday

Venue – Conference Hall of IBSS RAS (Nakhimov Ave., 2)

9:00 – 10:00 Registration of participants

10:00 – 10:30 Opening ceremony

Plenary session

10:30 – 11:00 Milchakova Natalia, PhD in Biology (IBSS RAS) “The role of Alexander Kovalevsky in the development of marine biology and scientific research at the Sevastopol Biological Station,” [in-person]

11:00 – 11:30 Mukhanov Vladimir, PhD in Biology (IBSS RAS) “Artificial intelligence used by a young ocean researcher: tool or crutch?” [in-person]

11:30 – 12:00 Coffee break

Plenary session

12:00 – 12:30 An-Yi Tsai, PhD (IMEE NTOU, Keelung, Taiwan) “Distinct water mass between inside and outside eddy drive changes in prokaryotic growth and mortality in the tropical Pacific Ocean,” [in-person]

12:30 – 13:00 Doroshkov Alexey, PhD in Biology (ICG SB RAS) “Systems biology of marine organisms” [online]

13:00 – 14:00 Lunch

Section 1. Biodiversity and Functioning of Aquatic Ecosystems and Their Sustainable Use

14:00 – 14:15 Podolskaya Maria (IBSS RAS) “Effects of phycobiliproteins from *Arthrospira platensis* on the cellular immunity of the Pacific oyster *Magallana gigas*” [in-person]

14:15 – 14:30 Parfenov Vitaly (IBSS RAS) “Assessment of acute toxicity of an aqueous extract of phycobiliproteins to the Pacific oyster (*Magallana gigas*)” [in-person]

14:30 – 14:45 Lishaev Vyacheslav (IBSS RAS) “Bioaccumulation of lanthanum by diatoms *Nanofrustulum shiloi* (J.J. Lee, Reimer et McEnery) Round, Hallstensen et Paasche, 1999 and *Amphora bigibba* Grunow ex A. Schmidt, 1875” [in-person]

14:45 – 15:00 Smirnova Ekaterina (SSC RAS) “Some data on the current state of macrozoobenthos in the coastal parts of Yasin Bay and the lagoons of the Eastern Azov region” [in-person]

15:00 – 15:15 Tevs Kirill (Scientific and Educational Complex “Primorsky Oceanarium”, NNCMB FEB RAS) “Analysis of seasonal variability of phytoplankton in a water area with high anthropogenic pressure” in-person participation [in-person]

15:15 – 15:30 Tyurnev Ivan (LIN SB RAS) “Testing the PhycoProbe spectrofluorimeter on pure cultures of phytoplankton from Lake Baikal” [in-person]

15:30 – 15:45 Clara Natalie Annabel (IMEE NTOU, Keelung, Taiwan) “Importance of viral lysis for winter bacterial and picophytoplankton mortality throughout the euphotic zone of the tropical Pacific Ocean” [in-person]

15:45 – 16:00 Madeline Olivia (IMEE NTOU, Keelung, Taiwan) “Microplastics affect marine snow formation and sinking to the Ocean’s interior” [in-person]

16:00 – 16:30 Coffee break

16:00 – 18:00 Section of the Minor Academy of Science (31 laboratory)

Section 2. Land Ecosystems: Structure, Functioning and Dynamics

16:30 – 16:45 Aboubacar Sylla (CEREMAC-G, Conakry, Guinea) “Study of the spatio-temporal distribution of zooplankton in the Fataala River estuary” [in-person]

16:45 – 17:00 Taryn Denisse Suazo Ubieta (UNAN, Managua, Nicaragua) “Genetic analysis of main varieties of coffee grown in Nicaragua” [online]

17:00 – 17:15 Zulma Francisca Pérez (UNAN, Managua, Nicaragua) “Contribution of the Biotechnology Research Center to environmental restoration” [online]

17:15 – 17:30 Samantha Alexandra Miranda Calero (UNAN, Managua, Nicaragua) “Proximal, biochemical and genetic analysis of promising cacao from main cocoa-growing areas in Nicaragua” [online]

17:30 – 18:30 Reception (buffet)

7 October, Tuesday

Venue – Conference Hall of IBSS RAS (Nakhimov Ave., 2)

Plenary session

9:00 – 9:30 Ponomareva Anna, PhD in Biology (Scientific and Educational Complex “Primorsky Oceanarium”, NNCMB FEB RAS) “*Skeletonema* Species: Identification Challenges, Diversity, and Seasonal Dynamics” [online]

9:30 – 10:00 Rauen Tatyana, PhD in Biology (IBSS RAS) “Plastic pollution of aquatic ecosystems” [in-person]

Section 7. Molecular-genetic studies of ecosystems

10:00 – 10:15 Pilevich Darya (IERiZh Ural Branch, RAS) “Genetic diversity of forest mice (*Sylvaemus*, Muridae, Rodentia) of the eastern Caucasus: new cyt b data” [online]

10:15 – 10:30 Babich Milena (IBSS RAS) “Composition and structure of soil bacterial communities in Bidoup-Nui Ba National Park (Lam Dong Province, Vietnam)” [online]

10:30 – 10:45 Ignatyeva Darya (IBSS RAS) “Functional shifts in the soil microbial community of the Fatale River basin (Republic of Guinea) during the dry and wet seasons” [online]

Section 6. Physiology and biochemistry of adaptive processes in aquatic organisms

10:45 – 11:00 Azarov Victoria (ICG SB RAS) “Method for three-dimensional reconstruction of tissues at cellular resolution for adult ctenophores *Pleurobrachia bachei* and *Beroe ovata* based on serial sections” [in-person]

11:00 – 11:15 Aleskerov Naig Rafig ogly (NNCMB FEB RAS) “Topography of ganglion cells in the retina and spatial resolution in representatives of the family *Apogonidae*” [online]

11:15 – 11:30 Dikareva Yuliya (IBSS RAS) “Age-related changes in fatty acid content in the soft tissues of the bivalve *Anadara kagoshimensis* from the Azov Sea” [in-person participation]

11:30 – 11:45 Lavrichenko Darya (IBSS RAS) “Assessment of the functional status of the Mediterranean mussel *Mytilus galloprovincialis* under shell damage” [in-person]

11:45 – 12:00 Osipova Alyona (IBSS RAS) “Anaerobic processes in the tissue structures of the Mediterranean mussel *Mytilus galloprovincialis* (Lamarck, 1819) under experimental hypoxia” [online]

12:00 – 12:30 Coffee break

Section 1. Biodiversity and Functioning of Aquatic Ecosystems and Their Sustainable Use

12:30 – 12:45 Degtyar Irina (SevSU) “Morphological characteristics of cells of the microalga *Dunaliella* from hypersaline lakes of Crimea using the FlowCam flow cytometer” [in-person]

12:45 – 13:00 Gainetdinova Alfiya (Far Eastern Federal University) “Preliminary data on the composition of the macrozoobenthos community in the Kuril Strait (Cape Lopatka)” [online]

13:00 – 13:15 Sirotin Alexey (Kazan Federal University) “Zooplankton of the cascade of multi-year beaver ponds in the protected area” [online]

13:15 – 13:30 Pospelov Stefan (IBSS RAS; SevSU, Institute of Marine Research) “Distribution of chlorophyll-a in the seas of the northwestern Pacific in spring 2025: integration of *in situ* and satellite data” [in-person]

13:30 – 13:45 Bashkirova Anastasia (IBSS RAS; SevSU, Institute of Marine Research) “Distribution of macrozooplankton abundance in the waters of Crimea, Kerch and the Caucasus accounting for hydrometeorological factors in spring 2025” [in-person]

13:45 – 14:00 Bogacheva Elizaveta (IBSS RAS) “Effect of salinity on the physiological state of the marine microalgae *Coccomyxa parasitica*” [in-person]

14:00 – 15:00 Lunch

Section 1. Biodiversity and Functioning of Aquatic Ecosystems and Their Sustainable Use

15:00 – 15:15 Kandaurova Daria (IBSS RAS) “Long-term dynamics of species composition of the layers of the ericario-gongolyar phytocenosis of the natural monument ‘Coastal aqual complex at Chersonesos Taurica’ (Sevastopol)” [in-person]

15:15 – 15:30 Monashev Ilya (VorSU) “Observations of facultative symbiosis cases between periphytic unicellular organisms and the ciliate *Platycola decumbens*” [online]

15:30 – 15:45 Konoplyanikov Mikhail (IBSS RAS) “Spatial gradients and mechanisms controlling picoplankton abundance in the bays of the southwest coast of Crimea in summer 2025” [online]

15:45 – 16:00 Rogozhkin Nikita (IBSS RAS; SevSU, Institute of Marine Research) “Abundance of small metazoan zooplankton and water temperature in the eastern tropical Atlantic” [in-person]

16:00 – 16:15 Lishaev Denis (IBSS RAS) “Diatom algae of rocky substrates in Inkerman Bay of the Crimean Black Sea coast” [in-person]

16:15 – 16:30 Kalyuzhnaya Olga (RUDN University) “Toxicity of metribuzin for fertility indicators and age composition of *Daphnia magna Straus*” [online]

16:30 – 16:45 Podzorova Darina (IBSS RAS) “Invertebrate fauna of Catherine Grotto (Cape Aya, Black Sea)” [in-person]

16:45 – 17:00 Samotoy Yuliya (IBSS RAS) “Long-term dynamics of size and sex structure of the sand smelt *Atherina boyeri* (Atherinidae) from the coastal zone of Sevastopol in 2013-2018” [in-person]

8 October, Wednesday

Venue – Conference Hall of IBSS RAS (Nakhimov Ave., 2)

Plenary session

9:00 – 9:30 Zubairova Ulyana, PhD in Biology (ICG SB RAS) “Digital twin of a laboratory culture of the marine protist *Thraustochytrium aureum* ssp. Strugatskii” [online]

9:30 – 10:00 Konik Alexander, PhD in Geography (IO RAS) “Variability of hydrological conditions during the spawning period of the Eastern Kamchatka pollock” [in-person]

Section 3 Aquatic Biological Resources, Biotechnology and Aquaculture

10:00 – 10:15 Tyunina Maria (TINRO) “Effect of the proportion of low-molecular-weight peptides on the antiradical activity of tissue hydrolysates of the bivalve *Corbicula japonica*” [in-person]

10:15 – 10:30 Dyakova Svetlana (State Research Institute of Freshwater Fisheries) “Microbiota of salmonids under industrial conditions” [in-person]

10:30 – 10:45 Kirienko Ekaterina (Karadag Scientific Station named after T. I. Vyazemsky) “Effect of light intensity on accumulation of an extracellular marenin-like pigment in cultures of *Haslea karadagensis* (Bacillariophyta)” [in-person]

10:45 – 11:00 Polovinkina Maria (SSC RAS) “Effect of a hydroxy-substituted chalcone derivative on viability parameters of beluga (HUSO HUSO) sperm in the presence of PbCl₂ and on lipid peroxidation levels” [online]

11:00 – 11:15 Nedina Nadezhda (Don State Technical University) “Assessment of the health status of African catfish (*Clarias gariepinus*) in a biofloc system” [online]

11:15 – 11:30 Zhukova Yulia (SevSU, Institute of Marine Research) “Comparative analysis of blood protein content in common fish species from the coastal waters of Sevastopol” [online]

11:30 – 11:45 Vdovovich Ilya (IBSS RAS) “Experimental studies on the application of nanocellulose in cosmetic products” [in-person]

11:45 – 12:00 Gorshkova Anastasia (Crimean Federal University). “Benthic diatoms as indicators of organic pollution in Maryinskoye Lake (Simferopol, Crimea)” [online]

12:00 – 12:30 Coffee break

12:30 – 12:45 Zaitsev Alexander (IBSS RAS) “Information presentation system for fishes for an electronic atlas-identifier using Black Sea sparids (*Sparidae*, *Pisces*) as an example” [online]

12:45 – 13:00 Zhelankin Roman (Psychology Institute RAS) “Individual behavioral traits of aquatic organisms as a basis for their selection” [online]

13:00 – 13:15 Daurtseva Anna (MMBI RAS; MAU) “Resource potential of *Ascophyllum nodosum* (L.) Le Jolis in the Barents Sea as a source of energy and bioactive metabolites” [online]

13:15 – 13:30 Priymak Anastasia (IBSS RAS) “Feeding selectivity of the oyster *Magallana gigas* depending on the size and taxonomic structure of phytoplankton in Laspi Bay (Black Sea)” [in-person]

13:30 – 13:45 Kalyuzhnaya Sofia (IBSS RAS) “Size-age and sex structure of hypoxic-killed anchovy found off the coast of Sevastopol in January 2025” [in-person]

13:45 – 14:00 Galitskaya Sofia (Yaroslavl State Agrarian University) “Changes in the gut microbiome of African catfish when switching feed from Coppens to Extrudat” [online]

14:00 – 14:15 Pogosyan Valeria (Northern Water Problems Institute, KarRC RAS; Petrozavodsk State University; Kamchatka State University) “Anti-predator feeding strategies of marine benthic invertebrates in the waters of pre-Kamchatka against benthivorous fish” [online]

Plenary session

14:15 – 14:45 Marcelo Hermes-Lima, PhD (UnB, Brasilia, Brazil) “The role of preparation for oxidative stress (POS) in animal adaptation for great challenges of nature” [online]

14:45 – 15:30 Lunch

15:30 – 17:00 Round Table “Oil pollution of the Black Sea” (Conference Hall)

Moderator: Elena Tikhonova, PhD in Biology (IBSS RAS)

Speakers:

Olga Soloveva, PhD in Biology (IBSS RAS) – “Assessment of Oil Pollution in the Coastal Marine Waters of the Crimean Peninsula (December 2024 – March 2025)” [in-person]

Sergey Alyomov, PhD in Biology (IBSS RAS) – “Hydrobiological Method for Cleaning and Sanitizing Marine Waters as a Long-Term Strategy for Combating Oil Pollution” [in-person]

Oksana Puzina (MHI RAS) – “Dynamics of Fuel Oil Pollution Spread in the Black Sea Following the Volgoneft Vessel Accident: Results from the Black Sea Forecasting System” [in-person]

Lyudmila Kharitonova, PhD in Geography (MHI RAS) – “Mathematical Modeling of the Dynamics of Sand-Oil Agglomerates on the Seabed in the Kerch Strait Area of the Black Sea After the Volgoneft Vessel Accident” [in-person]

9 October, Thursday

Venue – Conference Hall of IBSS RAS (Nakhimov Ave., 2)

Plenary session

9:30 – 10:00 Gorbunova Tatyana, PhD in Geography (IBSS RAS) “Vulnerability of coastal ecosystems to climate change – experience of international cooperation within the BRICS grant” [in-person]

10:00 – 12:00 Round Table “Prospects for the Development of International Cooperation Among Young Scientists: Challenges and Solutions”

12:00 – 12:30 Coffee break

Section 2. Terrestrial Ecosystems: Structure, Functioning and Dynamics

12:30 – 12:45 Dovgalyuk Irina (IBSS RAS) “Spatial structure of cenopopulations of *Crambe maritima* L. on the coasts of the Tarkhankut Peninsula” [in-person]

12:45 – 13:00 Sushko Kirill (SSC RAS) “Condition of soils in the coastal zone of small rivers of the northeastern Azov region and the Don Delta under current conditions” [online]

13:00 – 13:15 Miroshnichenko Oksana (IBSS RAS) “Radionuclides Cs-137 and K-40 in hydrobionts of the Crimean salt lakes” [in-person]

13:15 – 13:30 Korneyeva Arsenia (Kursk State University) “Invasion of Sosnowsky’s hogweed (*Heracleum sosnowskyi manden.*) into coastal phytocenoses of the Kursk city” [online]

13:30 – 13:45 Agil Rafi Hakhiyev (Institute of Zoology, Baku, Azerbaijan) “The eco-characteristics of lesser, Mehely’s and greater horseshoe bats, lesser mouse-eared, Geoffroy’s and whiskered bats distributed in Jeyranchol-Ajinohur” [online]

13:45 – 14:00 Golovatenko Elizaveta (Ural Federal University) “Some features of the dragonfly assemblages at the biological station of the Ural Federal University” [in-person]

14:00 – 15:00 Lunch

15:00 – 15:15 Khudyakova Karina (Kursk State University) “Changes in meadow-steppe phytocenoses of Kursk Region under the impact of invasions by *Lupinus polyphyllus* and *Solidago canadensis*” [in-person]

15:15 – 15:30 Bareeva Alina (Astrakhan State Technical University) “Rhizosphere bacteria of the European glasswort (*Salicornia europaea*)” [online]

15:30 – 15:45 Kalinina Anzhela (DonSU) “Structure of *Tragopogon major* jacq. cenopopulations in transformed ecotopes of the northern Azov region” [online]

15:45 – 16:00 Novichkova Natalya (Crimean Federal University) “Monitoring of ixodid ticks in the Simferopol district in 2025” [in-person]

16:00 – 16:15 Linyeva Nastasya (IBSS RAS; SevSU, Institute of Marine Research) “Analysis of land cover dynamics in Cat Tien National Park and the Mada forest block (within the Dong Nai biosphere reserve, Vietnam)” [in-person]

16:15 – 16:30 Tabunshchik Vladimir (IBSS RAS) “Condition of catchment basins of small and medium rivers: geoecological assessment and evaluation of ecosystem services using remote sensing and geoinformation modeling methods” [online]

16:30 – 16:45 Drygval Anna (IBSS RAS) “Assessment of nitrogen dioxide (NO₂) concentrations in the atmosphere of the Crimean Peninsula for 2019-2023” [online]

16:45 – 17:00 Drygval Polina (IBSS RAS; Karadag Scientific Station named after T. I. Vyazemsky; RCBCHS FMBA of Russia) “Changes in annual precipitation in the basins of some small and medium rivers of the Caspian Sea catchment (1961-2023)” [online]

17:00 – 17:15 Shiryaeva Elizaveta (Crimean Federal University) “New data on the supralittoral isopod (*Isopoda: oniscidea*) fauna of the western coast of Crimea” [in-person]

10 October, Friday

Venue – Conference Hall of IBSS RAS (Nakhimov Ave., 2)

Plenary session

9:00 – 9:30 Aleksey Rozanov, PhD in Biology (NTU “Sirius”) “Genetic editing for biotechnology” [in-person]

9:30 – 10:00 Kazakova Elizaveta, PhD in Biology (Russian Institute of Radiology and Agroecology) “Adaptive responses of herbaceous plants from the Chernobyl exclusion zone to ionizing radiation: searching for candidate molecules of resistance to abiotic stressors” [online]

Section 4. Biophysics and Chemistry of the Sea

10:00 – 10:15 Svergun Egor (IO RAS) “Manifestations of short-period internal waves in the chlorophyll a concentration field calculated from high-resolution satellite data in the coastal zone of Avacha and Kronotsky bays” [in-person]

10:15 – 10:30 Blinova Anastasia (Moscow State Pedagogical University; MHI RAS; FEFU) “Bio-optical modeling of the sea radiance coefficient spectrum for coastal waters in the southern part of the Kamchatka Peninsula” [in-person]

10:30 – 10:45 Paraskiv Artem (IBSS RAS) “Plutonium radioisotopes in bottom sediments of the Norwegian and Barents Seas” [in-person]

10:45 – 11:00 Naumova Veronika (MIPT) “Features of the distribution of dissolved oxygen and physico-chemical characteristics in the coastal waters of the southwestern part of the Kamchatka Peninsula (Sea of Okhotsk)” [online]

11:00 – 11:15 Klycheva Yulia (IBSS RAS) “Accumulation of hydrocarbons by the mussel *Mytilaster lineatus gmel.* on natural substrates in the waters of the Crimean coast (Sevastopol and Laspi bays, Black Sea)” [in-person]

11:15 – 11:30 Bayandin Aleksey (IBSS RAS) “From nets to neural networks: development of automated methods for quantitative accounting of the Black Sea gelatinous microzooplankton” [in-person]

11:30 – 11:45 Daurtseva Anna (MMBI RAS; MAU) “Species-specific patterns in the accumulation of elements, polysaccharides and polyphenols in the Arctic brown algae *Ascophyllum nodosum* and *Fucus distichus*” [online]

11:45 – 12:15 Coffee break

Section 5. Marine Ecotoxicology. Assessment of Water Quality

12:15 – 12:30 Bayandin Aleksey (IBSS RAS) “Assessment of Black Sea gelatinous hydrobionts as test organisms for biomonitoring marine pollution” [in-person]

12:30 – 12:45 Vakhrushev Maksim (IBSS RAS) “Changes in dissolved vanadium concentration in Black Sea waters after the accidental oil spill in December 2024” [in-person]

12:45 – 13:00 Chuzhikova Olga (IBSS RAS) “Trace elements in bottom sediments of the Hau and Mekong rivers (Mekong Delta, Vietnam)” [in-person]

13:00 – 13:15 Frolkin Georgy (IBSS; HSPU) “Chemical-microbiological characterization of bottom sediments in the coastal waters of the southeastern part of the Kamchatka Peninsula (Pacific Ocean)” [in-person]

13:15 – 13:30 Zaripova Ksenia (IBSS RAS) “Hydrocarbons in bottom sediments of the coastal waters of southern Kamchatka” [online]

13:30 – 13:45 Vasinkin Kirill (KSPU) “Assessment of contamination of Anapa’s water resources by oil residues using nuclear magnetic resonance methods” [online]

13:45 – 14:00 Serbina Anastasia (SevSU; MAN; IBSS RAS) “Effects of hydrocarbons on physiological and biochemical parameters of the Mediterranean mussel *Mytilus galloprovincialis*” [in-person]

14:00 – 14:15 Litvin Yuri (IBSS RAS) “Response of representatives from three classes of diatoms (*Bacillariophyta*) to hydrocarbons exposure” [in-person]

14:15 – 15:00 Closing ceremony

Young Scientists School

“Modern Domestic Molecular-Genetic Methods for Biological Object Research”

Venue – Shared Use Center «Phylogenomics and Transcriptomics» of the IBSS RAS
(Katernaya St. 47)

October 6–11, 2025

Classic Sequencing Module

Instructor: Aleksandr Volkov

October 6	Theory: Principles and methods of nucleic acid extraction. Practice: DNA extraction using the Kolibri station. Manual DNA extraction using magnetic particles, setting up a verification PCR, measuring concentration with a fluorimeter, electrophoresis. Samples: 2 fish, 1 mussel, 1 crustacean (in duplicate). Equipment: Kolibri station, thermostat, set of dispensers, vortex mixer. Samples: 8 samples from Kolibri and 4 samples obtained manually. Equipment: Centrifuge, shaking thermostat, vortex mixer, set of dispensers, magnetic stand for 1.5-ml tubes, Qubix fluorimeter, PCR workstation, thermal cycler, electrophoresis table.
October 7	Practice: Amplification of target fragments (CO1, D-loop of mtDNA). Purification of amplicons using magnetic particles. Agarose gel electrophoresis. Theory: Principles and examples of biological object identification. Samples: 4 samples from Kolibri and 4 samples manually. Equipment: PCR workstation, thermal cycler, set of dispensers, magnetic stand for PCR tubes, vortex mixer. Practice: Setting up Sanger sequencing reaction, purification using magnetic particles. Instrument launch. Theory: Sanger DNA sequencing technology, analysis of common errors. Samples: 2 samples from Kolibri and 2 samples manually. Equipment: PCR workstation, thermal cycler, set of dispensers, magnetic stand for PCR tubes, vortex mixer, NanoFor 05.
October 8	Practice: Fragment analysis. Theory: GeneExpert Sturgeon reagent kit: principles and examples of operation. Equipment: PCR workstation, set of dispensers, vortex mixer, NanoFor 05. Summary, discussion of results, and Q&A session.

Whole-Genome Sequencing Module

Instructor: Anton Pushkin, PhD in Biology

October 9	Practice: Total DNA extraction from soil. Verification PCR (16S gene). Concentration measurement using a fluorimeter. Theory: MetaGen-MPS technology. Application of MetaGen-MPS technology for bacterial diversity assessment. Nuances and practical aspects of total DNA extraction from soil for microbiome assessment.
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	Samples: 4 dry soil samples from the Republic of Guinea. Equipment: Set of dispensers, mortars and pestles, sandblaster, shaking thermostat, centrifuge, vortex mixer, Qbix fluorimeter, PCR workstation, real-time PCR instrument (LightCycler).
October 10	Practice: Electrophoresis of libraries. Concentration measurement. Pooling libraries for sequencing. Setting up MPS on NanoFor SPS. Theory: Metagenomic sequencing. Basics of targeted sequencing of the 16S rRNA gene. Samples: 4 samples. Equipment: Horizontal electrophoresis equipment, Qbix fluorimeter, set of dispensers, vortex mixer, NanoFor SPS. Theory: Principles of NanoFor SPS operation. Sequencing by synthesis. Comparison of sequencing technologies. Whole-genome and transcriptome sequencing. Principles of genomic library preparation. Library fragmentation using ultrasonic sonicator and enzymatic fragmentation (SintEra). Library purification options.
October 11	Practice: Analysis of results obtained on NanoFor SPS. Data interpretation. Theory: Bioinformatic aspects of data analysis. Differences in approaches between full metagenomic sequencing and targeted 16S rRNA sequencing. Practice: Assessment of the quality and quantity of genomic libraries. Instrument maintenance.
	Summary, certificate awarding, discussion of results, and Q&A session.

List of Organizations

1. A.O. Kovalevsky Institute of Biology of the Southern Seas (IBSS RAS), Sevastopol
2. A.V. Zhirmunsky National Scientific Center of Marine Biology, Far Eastern Branch, Russian Academy of Sciences (NSCMB FEB RAS), Vladivostok
3. All-Russian Research Institute of Agricultural Radiology and Agroecology (VNIRAE), Obninsk
4. Astrakhan State Technical University (ASTU), Astrakhan
5. Center for Marine and Coastal Research of Guinea, Conakry, Republic of Guinea
6. Don State Technical University (DSTU), Rostov-on-Don
7. Donetsk State University (DonSU), Donetsk – Federal State Budgetary Educational Institution of Higher Education
8. Far Eastern Federal University (FEFU), Vladivostok
9. Federal State Unitary Enterprise “Scientific and Technical Center for Radiation, Chemical, and Biological Safety” of the Federal Medical and Biological Agency (FMBA), Moscow
10. Herzen State Pedagogical University of Russia (HSPU), St. Petersburg
11. Institute of Biochemical Technologies, Ecology, and Pharmacy (IBTEP), Simferopol
12. Institute of Cytology and Genetics, Siberian Branch, Russian Academy of Sciences (ICG SB RAS), Novosibirsk
13. Institute of Natural Sciences and Mathematics, Ural Federal University (INSM UrFU), Yekaterinburg
14. Institute of Psychology, Russian Academy of Sciences (IP RAS), Moscow
15. Institute of Zoology, Azerbaijan National Academy of Sciences, Baku, Azerbaijan
16. Kazan State Power Engineering University (KSPU), Kazan
17. Kostroma State University (KSU), Kostroma
18. Kursk State University (KSU), Kursk
19. L.S. Berg State Research Institute of Lake and River Fisheries (GosNIORH), St. Petersburg – St. Petersburg Branch of the Federal State Budgetary Scientific Institution “All-Russian Research Institute of Fisheries and Oceanography”
20. Limnological Institute, Siberian Branch, Russian Academy of Sciences (LIN SB RAS), Irkutsk
21. Marine Hydrophysical Institute, Russian Academy of Sciences (MHI RAS), Sevastopol
22. MGIMO University (Moscow State Institute of International Relations), Moscow
23. Minor Academy of Sciences (MAN), Sevastopol
24. Moscow Institute of Physics and Technology (MIPT), Moscow
25. Moscow Pedagogical State University (MPSU), Moscow
26. Murmansk Arctic University (MAU), Murmansk
27. Murmansk Marine Biological Institute, Russian Academy of Sciences (MMBI RAS), Murmansk
28. National Autonomous University of Nicaragua, Managua, Nicaragua
29. National Taiwan Ocean University, Keelung, Taiwan
30. Northern Water Problems Institute, Karelia Research Centre, Russian Academy of Sciences (NWPI KarRC RAS), Petrozavodsk
31. P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences (IO RAS), Moscow
32. Pacific Branch of the All-Russian Research Institute of Fisheries and Oceanography (TINRO), Vladivostok
33. Peoples' Friendship University of Russia (RUDN University), Moscow

34. Petrozavodsk State University (PetrSU), Petrozavodsk
35. Primorsky Aquarium Educational and Scientific Complex, A.V. Zhirmunsky National Scientific Center of Marine Biology, Far Eastern Branch, Russian Academy of Sciences, Vladivostok
36. Russian Federal Research Institute of Fisheries and Oceanography (VNIRO), Moscow
37. Sevastopol State University (SevSU), Sevastopol
38. Sirius University of Science and Technology, Sirius
39. Southern Scientific Center, Russian Academy of Sciences (SSC RAS), Rostov-on-Don
40. St. Petersburg Branch of the P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences (SPb IO RAS), St. Petersburg
41. St. Petersburg Mining University (SPMI), St. Petersburg
42. T.I. Vyazemsky Karadag Scientific Station – Nature Reserve, Russian Academy of Sciences, Feodosia – Branch of the Federal State Budgetary Institution of Science “A.O. Kovalevsky Institute of Biology of the Southern Seas, Russian Academy of Sciences”
43. Tropical Center – Russian-Vietnamese Tropical Research and Technological Center
44. University of Brasília, Brasília, Brazil
45. V.I. Vernadsky Crimean Federal University
46. V.I. Vernadsky Crimean Federal University (CFU), Simferopol
47. Vitus Bering Kamchatka State University, Petropavlovsk-Kamchatsky
48. Voronezh State University (VorSU), Voronezh
49. Yaroslavl State Agrarian University (YSAU), Yaroslavl