

CHRONICLE AND INFORMATION

TO THE JUBILEE OF D. SC. NELLI SERGEEVA



November 20, 2020 is a significant date in the life of Nelli Sergeeva, D. Sc., chief researcher of A. O. Kovalevsky Institute of Biology of the Southern Seas of RAS.

Nelli Sergeeva was born in Ashgabat (Turkm.SSR). After finishing school in Alma-Ata (Kaz.SSR), she entered the faculty of biology and soil science of S. M. Kirov Kazakh State University (now Al-Farabi Kazakh National University). When being a student, she completed both course and pre-diploma internships in benthos department of IBSS of the Academy of Sciences of the Soviet Union, under the guidance of PhD Marta Kisseleva and PhD Iraida Greze. N. Sergeeva received a degree in biology, hydrobiology, and ichthyology and was assigned to work in the Kazakh Research Institute of Fisheries (the city of Balkhash). She was involved in assessing the effect of Balkhash Mining and Metallurgical Combine effluents on development and distribution of plankton and benthos in Lake

Balkhash. She also focused on the formation of benthos as a food base for valuable commercial fish species in the Chardara Reservoir, artificially created in 1966 on the Syr Darya River.

In 1968–1972, Nelli Sergeeva studied in the PhD graduate school in hydrobiology in IBSS under the supervision of Vladimir Vodyanitsky, director of the Institute, corresponding member of the Academy of Sciences of the Soviet Union. Having successfully completed PhD graduate studies, she started working in IBSS benthos department, where defended PhD thesis “Fauna and some questions of ecology of free-living nematodes of the Black Sea” (1974). Her further research in the area of diversity and properties of life in the Black Sea resulted in obtaining a very wide range of new data. In 2000, N. Sergeeva defended her D. Sc. dissertation “Zonal distribution of meiobenthos and its most important component – free-living nematodes in the Black Sea”, with the advisory assistance of Victor Zaika, the corresponding member of the National Academy of Sciences of Ukraine. In this work, she described 4 genera and 27 new species of free-living nematodes; 30 species and 28 genera of nematodes were indicated for the Black Sea for the first time.



Nelli Sergeeva and Irina Yakusheva,
Barcelona (1974)



Participants of the 102nd cruise of the RV “Akademik Kovalevsky” under the guidance of N. Sergeeva

gas bubble streams. Being thoughtful and scrupulous, she has discovered unknown to science living unicellular organisms (ciliates, soft-shelled foraminifera, and gromiids) and multicellular organisms (rotifers, nematodes, oligochaetes, polychaetes, and tardigrades), as well as unknown to the Black Sea species and genus of gastrotrichs. These discoveries were made in Black Sea anoxic zone – at the depths, previously considered lifeless (except for the bacterial flora) due to hydrogen sulfide contamination. She described live Cladocera specimens, raised from the depths of 1900 and 2140 m, as the new genus *Pseudopenilia* Sergeeva, 2004 and species *P. bathyalis* Sergeeva, 2004. In co-authorship with D. Sc. N. Korovchinsky, she substantiated the family Pseudopenilidae Korovchinsky & Sergeeva, 2008, new to science, in the order Ctenopoda (Crustacea). During a cruise of the RV “Maria S. Merian” (Germany), Nelli Sergeeva found specific representatives of epibiotic ciliates on oligochaetes and harpacticoids, inhabiting Black Sea area of permanently anoxic and hydrogen sulfide conditions (depth over 250 m). Later, D. Sc., Prof. I. Dovgal has identified them as three species from the subclass Peritrichia and class Suctoria. Direct microscopic observations of active ciliates in hydrogen sulfide environment indicate the vital activity of benthic ciliates and their multicellular hosts under these extreme conditions.

Research of N. Sergeeva expanded the list of benthos faunal groups in the Black Sea. She was the first to discover gromiids (Gromiida) and soft-shelled foraminifera (Allogromiida) in Black Sea benthos communities and to describe their distribution. Together with O. Anikeeva, she has published the monograph with the description of 13 valid species and more than 90 unknown morphospecies (*incertae sedis*), inhabiting the Black Sea (<https://doi.org/10.21072/978-5-907118-84-3>). To date, within the framework of this group, she and her co-authors have described 3 genera and 7 new species of allogromiids; 13 species and 8 genera have been indicated



N. Sergeeva among the participants of the 53rd cruise of the RV “Professor Vodyanitsky” (1999)

for the Black Sea for the first time. Together with T. Revkova, she continues studying free-living nematode species, new to science and the Black Sea. According to Nelli Sergeeva, systematic status of at least 250 species of this group requires clarification. The interest of N. Sergeeva and her student Kh. O. Kharkevich in a poorly studied group of tardigrades (Tardigrada) resulted in discovering two species, new to the Black Sea, in Bosphorus Strait area.

Nelli Sergeeva made a significant contribution to the development of the concept of vertical zoning of life in the Black Sea. Based on new data on the diversity and bathymetric distribution of benthic fauna in the Black Sea, N. Sergeeva has revealed two belts of Black Sea benthos. Thus, the area from the water edge to 120–150 m is inhabited by organisms of macro-, meio-, and microbenthos, while the area from 120–150 m to maximum depths is inhabited by organisms of meio- and microbenthos. In fact, this created a new scientific direction in the research



Participants in the celebration of the anniversary of IBSS shelf ecosystems department (2006)

of benthos of deep-water periazotic areas of the Black Sea. Nelli Sergeeva considers that the study of various morphotypes of benthic organisms, common for bottom sediments at the extreme depths of the continental slope and deep-sea bed of the Black Sea, may be useful both for understanding the processes of modern sedimentation in the sea and for deciphering paleoclimatic changes.

N. Sergeeva has taken part in 17 scientific cruises, *inter alia* international ones. As a hydronaut-researcher, she dived to a depth of 110 m on an underwater vehicle “Benthos-300” in Caucasus and Crimea area. She acted as a coordinator, manager, and responsible executor of several international (HERMES, HYPOX, CoCoNet, PERSEUS, TÜBITAK-NASU, and EPA USA-STCU) and national projects, as well as of RFBR grants. She has published over 200 scientific works, *inter alia* sections in nine collective national and foreign monographs. The results of her research are widely cited by scientists all over the world. Zoologists highly appreciated the contribution of Nelli Sergeeva to taxonomy by naming in her honor two new species of free-living nematodes, *Leptolaimus sergeevae* (Ürkmez & Brennan, 2013) Holovachov & Boström, 2013 and *Microlaimus sergeevae* Revkova, 2020, as well as the genus and species of soft-shelled foraminifera, *Nellia* Gooday, Anikeeva & Pawlowski, 2011 and *Nellia rugosa* Gooday, Anikeeva & Pawlowski, 2011.

N. Sergeeva successfully combines intensive scientific work with organizational one: she was a secretary and a member of the specialized council for the defense of PhD and D. Sc. dissertations; she was the head of IBSS shelf ecosystems department (2000–2013); she participated in examination commissions, supervised the work of graduate students and applicants, and was the advisor at IBSS directorate (2017–2018). For many years of fruitful work and significant contribution to the development of national science in the field of marine hydrobiology, she was listed on the city Board of Honor (2019) and awarded the Certificate of Honor of the Russian Academy of Sciences (2020).

Nelli Sergeeva is immensely hard-working; she gets interested in anything new and unknown and tries to inspire her colleagues with own example. Having vast experience and scientific intuition, she is approached for consultations and proposals for joint research by bentologists. Her whole life is devoted to science. In her free time, she enjoys travelling; she is fond of classical music, painting, and theater. For the family, she is a loving mother and a caring grandmother.

We sincerely congratulate Nelli Sergeeva on her jubilee! We wish her new scientific discoveries and achievements, talented students, happiness, health, and family well-being.

Colleagues from IBSS benthos ecology department

**К ЮБИЛЕЮ ДОКТОРА БИОЛОГИЧЕСКИХ НАУК
НЕЛЛИ ГРИГОРЬЕВНЫ СЕРГЕЕВОЙ**

В ноябре 2020 г. отметила юбилей Нелли Григорьевна Сергеева — главный научный сотрудник ФИЦ ИнБЮМ, доктор биологических наук. Н. Г. Сергеева является известным в мире специалистом-мейобентологом, автором более чем 200 работ и соавтором 9 монографий.