

CHRONICLE AND INFORMATION

**TO THE MEMORY OF YUVENALI ZAITSEV  
(18.04.1924 – 08.01.2020)**

An outstanding hydrobiologist, Academician of the National Academy of Sciences of Ukraine, D. Sc., and Professor Yuvenali Zaitsev passed away. It was he who discovered marine neuston and formulated the concept of contour biotopes of the sea. Yu. P. Zaitsev is the author and co-author of more than 350 scientific publications, as well as of a number of popular science books. Under his scientific supervision, 6 doctoral and 24 master's dissertations were completed and defended.



On January 8, 2020, in Odessa, after a long illness, an outstanding hydrobiologist, Academician of the National Academy of Sciences of Ukraine, D. Sc., Professor, Honored Worker of Science and Technology of Ukraine, and Laureate of the State Prize of Ukraine Yuvenali Petrovich Zaitsev passed away.

He was born in the village of Bayramcha, Akkerman county of Bessarabia (now the village of Nikolaevka-Novorossiysk, Saratsky district, Odessa region of Ukraine) in the family of a teacher. He spent his childhood and youth in the village of Bolshaya Bala-banovka (now the village of Nikolaevka, Belgorod-Dniester district, Odessa region).

In 1949, he graduated from the Biology Department of Odessa I. I. Mechnikov State University (OSU; now Odessa National University). From 1950 to 1956 he worked at the Hydrobiological Station of OSU as a laboratory assistant. Under the scientific supervision of professor I. I. Puzanov, Yu. P. Zaitsev completed and defended his dissertation “Reproduction of fish with pelagic eggs in the Gulf of Odessa” at OSU in 1956. For the first time in science, the specific weight of pelagic eggs of various Black Sea fish species was determined, and this parameter made it possible to reveal the depth of eggs location in the anisotropic pelagic zone of desalinated northwestern part of the Black Sea.

In 1956, Yuvenali Petrovich as a junior researcher of the Odessa Biology Station of the Institute of Hydrobiology of the Academy of Sciences of the Ukrainian SSR began complex studies of the unknown to science community of organisms discovered by him in the Black Sea – marine neuston (primarily its lower tier – hyponeuston). The use of semi-submerged networks of the original design helped to collect a large amount of new scientific information concerning various marine organisms adapted to life in the upper water layer (0...–5 cm). The study of the conditions of the evolutionary formation of the marine neuston showed the universal nature of the presence of the near-surface pelagic community, and over time it was confirmed by studies throughout the World Ocean.

The discovery aroused the interest among western scientists and contributed to the start of marine neuston studies in France, Italy, Germany, the UK, Algeria, and other countries. Yu. P. Zaitsev's monograph "Marine Neustonology", published in 1970 in Kyiv, was released in English in the USA and Israel the following year. In 1974, "Soviet Life" magazine included the discovery of the marine neuston among the most important scientific achievements in the USSR. Using a network of Zaitsev's designs, foreign colleagues found and described diverse neuston in various oceans. In 1964, the scientist G. G. Polikarpov defined the marine neuston as the ecological target of the radioecological factor and the most "critical" biocenosis on the globe, since the highest concentrations of radionuclides are observed precisely in the surface water film and in the foam.

By invitation of foreign governments, Yuvenali Petrovich gave scientific reports and a course of lectures to students and teachers of France, the USA, Canada, Republic of South Africa, Turkey, and Japan.

In 1964, Yu. P. Zaitsev defended his dissertation "Hyponeuston of the Black Sea and its significance" at OSU. By a resolution of the Presidium of the Academy of Sciences of the Ukrainian SSR, the Hyponeuston Department was created in the Odessa Branch of IBSS. The staff studied bacteria, unicellular algae, invertebrates, and fish larvae at early stages of ontogenesis in a specific layer of neustal.

In 1968, Yuvenali Petrovich was approved in the rank of Professor by the Supreme Attestation Commission of the USSR. In 1969, he was elected a corresponding member of the Academy of Sciences of the Ukrainian SSR.

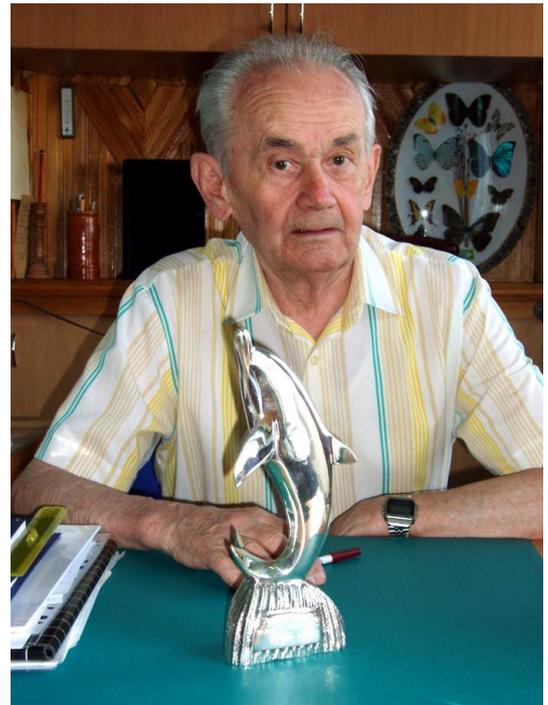
Yu. P. Zaitsev formulated the concept of contour biotopes of the sea inhabited by communities of contourobionts.

The external contours of the pelagic zone at its borders with atmosphere, coast, bottom, and rivers were identified: aerocontour (pelagic – atmospheric border), psammocontour (pelagic – sandy coast and bottom border), lithocontour (pelagic – rocky coast and bottom border), pelocontour (pelagic – silty coast and bottom border), and potamocontour (border between sea and river water masses). Each contour biotope is characterized by groups of organisms adapted to its specific conditions, mainly consisting of individuals at the early stages of ontogenesis.

An exception to this rule was the deep-sea pelocontour of the Black Sea in the hydrogen sulfide area, where the existence of oxybionts was considered *a priori* impossible. However, integrated researches initiated by Yu. P. Zaitsev and G. G. Polikarpov allowed finding viable stages of oxybiontic development from the upper Black Sea layers in bottom sediments at the depths up to 2200 m, from which heterotrophic bacteria, fungi, and microalgae cultures were bred in laboratory conditions.

As an international expert on biological diversity and marine ecology, Yuvenali Petrovich took part in the work of the Black Sea Ecological Programme (BSEP). His monographs and articles on international Black Sea issues were published in New York at the UN publishing house.

He participated in the work of the UN Joint Group of Experts on the Scientific Aspects of Marine Protection (GESAMP). At the meeting on the topical issue "The Sea-surface Microlayer and Its Role in Global Change" in the USA in 1994, Yu. P. Zaitsev made a report on the topic "Neuston of the seas and oceans".



The final document of this forum, GESAMP Reports and Studies (no. 59, 1995), proposed the organization of the monitoring system “Neuston Watch” to monitor the state of the neuston, which affected the process of mass-energy exchange between the ocean and the atmosphere, in various parts of the World Ocean.

Yuvenali Petrovich is the author and co-author of more than 350 scientific publications, including 18 monographs, published in 20 countries. He also wrote a number of popular science books on environmental education and education of young readers. Thus, “Through the glass of undersea mask”, “This amazing sea”, “Your friend the sea”, “Life of the sea surface”, “World of delta”, “Introduction to the Black Sea ecology”, and “Wild nature in the city” served as a guidance for young people in choosing professions of biologist and environmentalist.

Under the scientific supervision of Yu. P. Zaitsev, 6 doctoral and 24 master’s dissertations were completed and defended.

For 17 years (1972–1989), Yuvenali Petrovich headed Institute of Marine Biology (in the past, Institute of Biology of the Southern Seas) of the National Academy of Sciences of Ukraine. In the summer of 2019, IMB celebrated the 95<sup>th</sup> anniversary of Yu. P. Zaitsev’s birth, dedicating a large scientific conference to this date, in which the jubilee himself participated actively.

Despite the illness, Yuvenali Petrovich was engaged in scientific work until his last days. His health seriously deteriorated after the tragic events in his institute – the December fire that claimed the lives of his student and successor in the director position, Corresponding Member of the NAS of Ukraine Boris Alexandrov and the secretary Galina Ivanovich.

Yu. P. Zaitsev lived a long, fruitful, and glorious life – the life of a genuine Scientist and Intelligent. He was distinguished by constant goodwill, friendliness, and optimism. The bright memory of Yuvenali Petrovich will forever remain in our hearts.

*Colleagues from IBSS RAS and IMB NASU*

**ПАМЯТИ ЮВЕНАЛИЯ ПЕТРОВИЧА ЗАЙЦЕВА  
(18.04.1924 – 08.01.2020)**

Ушёл из жизни всемирно известный учёный-гидробиолог, академик НАН Украины, доктор биологических наук, профессор Ювеналий Петрович Зайцев. Ему принадлежат открытие морского нейстона и формулирование концепции контурных биотопов моря. Ю. П. Зайцев — автор и соавтор более чем 350 научных работ, а также ряда научно-популярных книг. Под его руководством выполнено и защищено 6 докторских и 24 кандидатских диссертации.