Лаборатория структуры и динамики планктонных сообществ

Laboratory of the plankton communities structure and dynamics

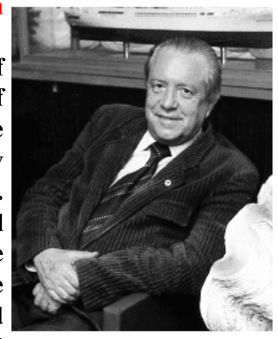
Laboratory directors

Prof. P.I. Usachyov, the Head of the Plankton Laboratory (1948-1962)

Studies on the phyto- and zooplankton as major elements of the plankton ecosystems, seasonal and geographical variability of pelagic assemblages; quantitative methods of the phytoplankton biomass assessment.

Prof. V.G.Bogorov, the Head of the Plankton Laboratory (1962-1971).

Corresponding Member of the Russian Academy of Sciences, One of the founders of P.P. Shirshov Institute of Oceanology. Conception of biological seasonality of marine ecosystems, mapping of the plankton biomass and productivity in the World Ocean



Prof. M.E.Vinogradov, Academician.

The Head of the Plankton Laboratory (1971-1985) later renamed as the Laboratory of the pelagic ecosystems functioning (1985-2007).

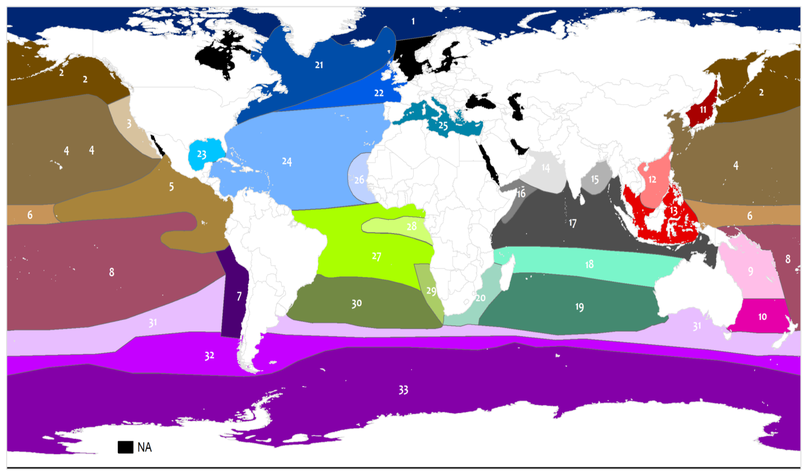
Basic regularities of the vertical distribution and migrations of the oceanic plankton. Structure, functioning, productivity, and dynamics of the epipelagic ecosystems of the World Ocean.

Prof. A.L. Vereshchaka, Corresponding Member of the Russian Academy of Sciences.

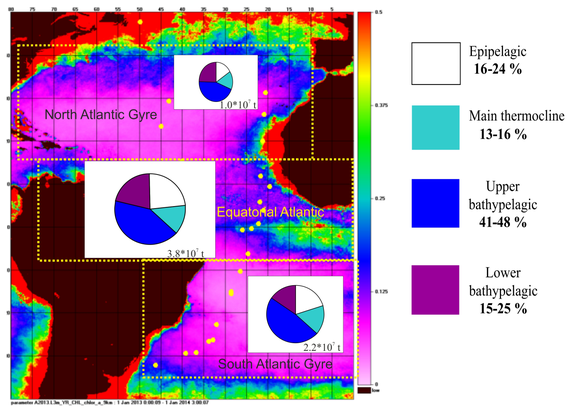
The Head of the Laboratory of the pelagic ecosystems functioning (2007-2008), later renamed as the Laboratory of the plankton communities structure and dynamics (since 2008).

Biological resources, biodiversity, and structure of the deep sea communities; implication of molecular methods for various oceanological tasks; taxonomy (over 50 taxa discovered), phylogeny, and evolution of plankton

Global bioresources and biogeography

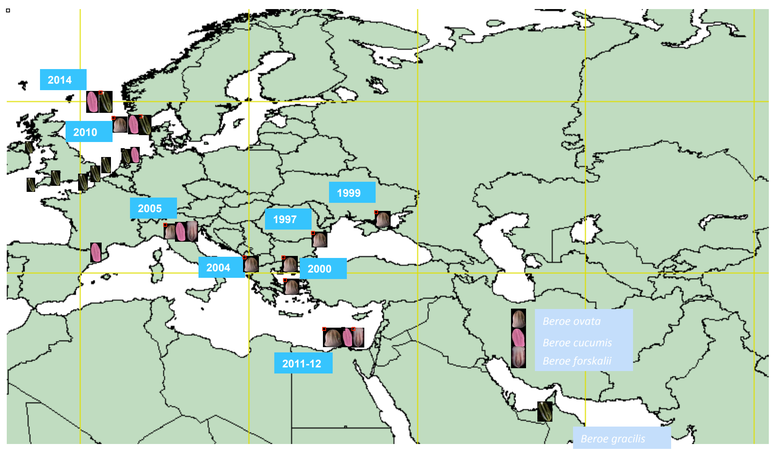


Global pelagic biogeography: proposed mesopelagic provinces of the world's oceans (TT Sutton, MR Clark, DC Dunn, PN Halpin, AD Rogers, J Guinotte, SJ Bograd, MV Angel, JA Perez, K Wishner, RL Haedrich, DJ Lindsay, JC Drazen, AL Vereshchaka , 2016. Biogeography (in press))

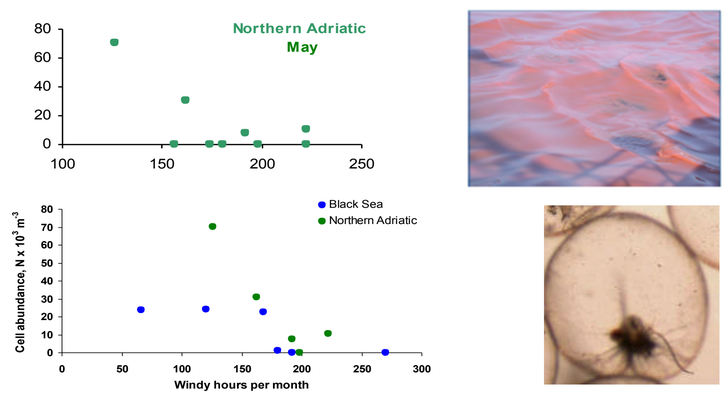


Deep-sea bioresources: the standing stock (t) of the deep-sea plankton and contribution (%) of vertical zones in the North, Equatorial, and South Atlantic. Yellow circles: stations. Background: surface chlorophyll-a concentration averaged over 2013, scale (mg m^{-2}) on right. (AL Vereshchaka, GA Abyzova, AA Lunina, EI Musaeva, TT. Sutton , 2016. Biogeoscience (in press))

Ecosystems of Russian seas: alarming processes

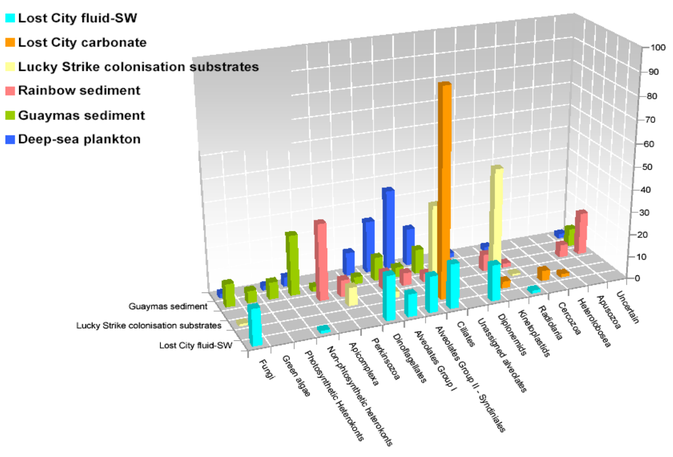


Biological invasions in marine ecosystems: assessment of pathways and monitoring, a case study of different species of the genus *Beroe* following *Mnemiopsis leidyi* (Shiganova et al, in press)

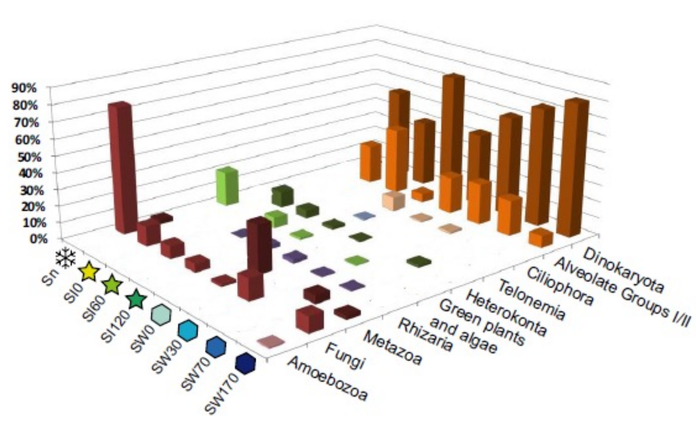


Analyses of "red blooms": a case study of *Noctiluca scintillans* in the Black and Adriatic Seas. If windy hours (>6 m per sec) exceed 200 per month, probability of "red blooms" greatly decreases (AS Mikaelyan, A Malej, TA Shiganova, V Turk, AE Sivkovitch, EI Musaeva, 2014. Harmful algae 33: 29-40)

Metagenomic

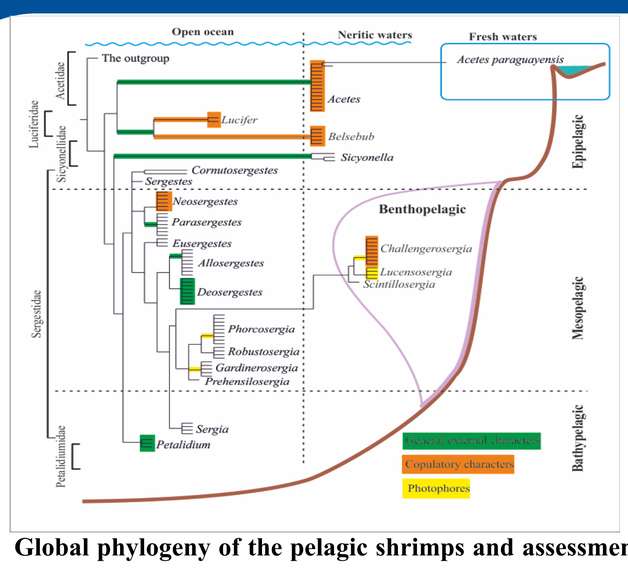


Genomic analysis of the hydrothermal vent microbiota (P.López-García, A. Vereshchaka, D. Moreira, 2007. Environmantal microbiology 9: 546-554)

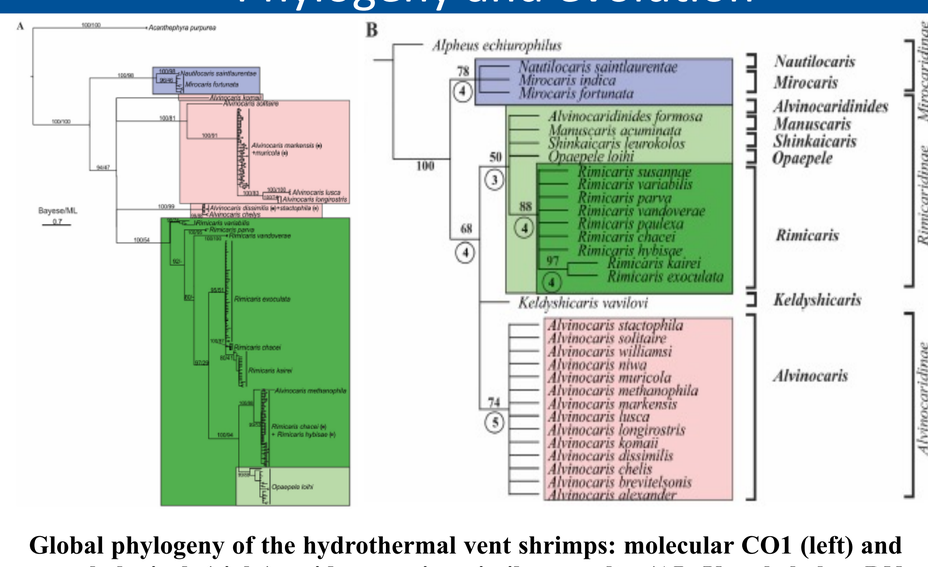


Genomic analysis of the polar fauna, first evidence from the North Pole: Snow (Sn), sea ice (SI), and sea water (SW) (C Bachy, P López-García, A.Vereshchaka, D, Moreira 2011. Frontiers in Microbiology 2, 106)

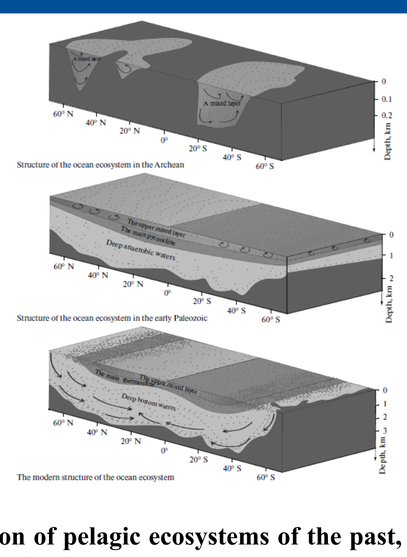
Phylogeny and evolution



Global phylogeny of the pelagic shrimps and assessment of their pathways into different biotopes (over 30 new taxa described) (AL Vereshchaka, 2016. Zoological Journal of the Linnean Society (in press))

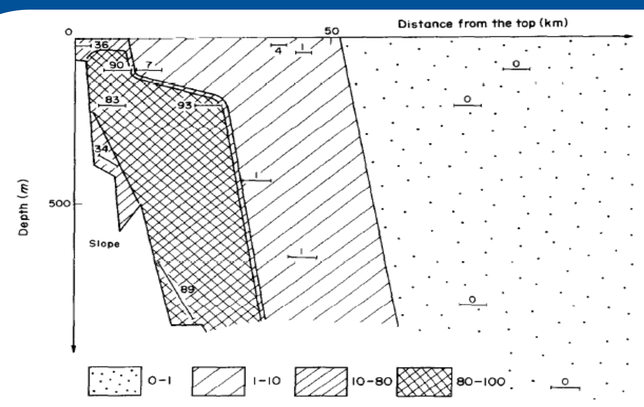


Global phylogeny of the hydrothermal vent shrimps: molecular CO1 (left) and morphological (right) evidences give similar results (AL Vereshchaka, DN Kulagin, AA Lunina , 2015. PloS one 10 (7), e0129975)

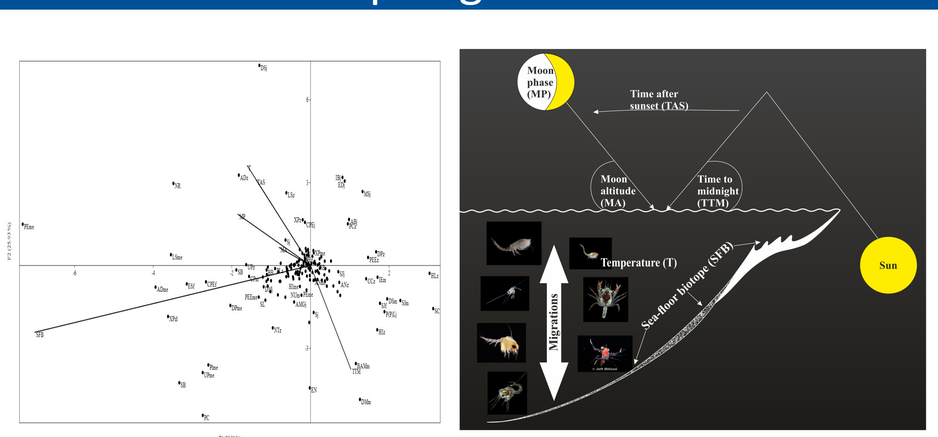


Reconstruction of pelagic ecosystems of the past, based on recent knowledge of their structure and functions. (AL Vereshchaka , 2015. Biospheric evolution: An oceanologist's view of research results and prospects Geochemistry International 52: 1260-1270)

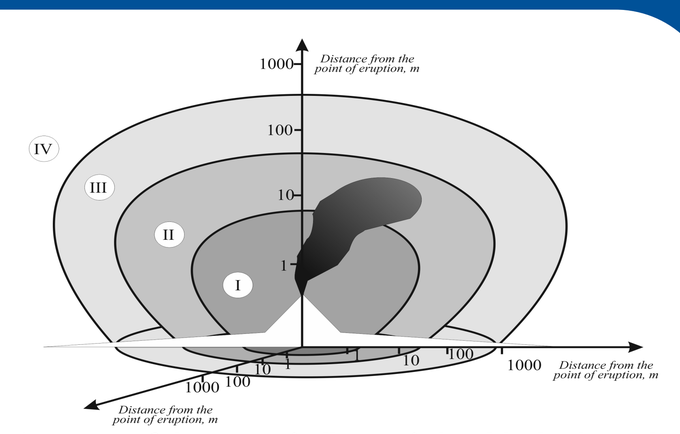
Benthopelagic zone



Conception of the benthopelagic contact zone where near-bottom processes dominate over pelagic processes: a case study of the Walters Shoals, Indian ocean (horizontal lines indicate trawl paths to scale, numbers lines above show contribution of the benthopelagic fauna (AL Vereshchaka, 1995. Deep Sea Research Part I: 42: 1639-1668)



Environmental factors to explain the nocturnal distribution of the benthopelagic fauna in the Black Sea (right) and their contribution (left, results of Canonical Correspondence Analysis) (AL Vereshchaka, LL Anokhina, 2016. Estuarine, Coastal and Shelf Science (in press))



A concept of the energetically quasi-closed hydrothermal communities: three-dimensional view on the Atlantic vents (AL Vereshchaka, ME Vinogradov, 2002. Three-dimensional view of the Atlantic abyssal benthopelagic vent community Cahiers de biologie marine 43: 303-306)