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# The newest investigations of hydrochemical structure in the dying Aral Sea

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Investigations of current state of the Aral Sea began in the early 21th century and continues to our days. Annual monitoring gives scientists an idea of the processes taking place in a dying sea. Investigations were focused on physical processes, studies of living organisms and chemical composition of sea water. However, studies of nutrients and carbonate system parameters have not been conducted for several decades. Do not underestimate the role of these studies, since possession of knowledge about hydrochemical structure produces an estimate of the abiotic component contribution in the development of a unique, though practically destroyed, Aral Sea ecosystem. During complex expeditions on September 2012 and November 2013 hydrochemical investigations were conducted. Year 2012 was basically methodical because we have to provide analyzes in ultra mineralized seawater and it was necessary to determine the threshold of many methods. However, samples from 17 horizons were taken. In addition to standard hydrochemical analyzes samples of suspended and dissolved metals were taken. Furthermore, in stationary laboratory in Moscow were analyzed total phosphorus and nitrogen, as well as salinity by Knudsen method.

In November 2013 we managed to conduct full hydrochemical section from western to eastern shore of the basin, and in coastal laboratory were analyzed first 5 samples of hydrogen sulfide. In addition, an attempt was made to find a layer of transition from oxygen to hydrogen sulfide (redox layer), unfortunately unsuccessful.

Results:

1.For determination of nutrients it is necessary to apply filtering and dilution of samples with distilled water (approximately 4 - 5 times).

2.Winkler method is applicable to waters of the Aral Sea (precision is 2-3%).

3.Content of main nutrients in the surface active layer was relatively low, but enough for not to be a limiting factor for development of living organisms.