

Radium isotopes as tracers of submarine groundwater discharge in the area of Cape Aiya, Sevastopol region

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The study regards the high-producing submarine karst origin springs is perspective on the coasts, lacking fresh water, with a view to damming. The experience of such work is available in a number of countries (France, Greece, Italy) and the evidence of their economic viability.

The average concentration of radium isotopes at nearshore was 128 dpm/m³ for Ra-228 and 136 dpm/m³ for Ra-226, background offshore values are 50 dpm/m³ for Ra-228 and 61 dpm/m³ for Ra-226. Measurements of hydrological (temperature, salinity) and hydrochemical parameters (concentration of nutrients) were also performed.

The highest concentrations of nutrients and desalination were observed in the inner part of the karst cavity, the smallest in the background station and amounted to: DIP (dissolved inorganic phosphorus) - 0.23 and 0.11 μM; silica - 38.9 and 3 μM; ammonium - 0.65 and 0.17 μM; nitrates - 17 and 0,01 μM; nitrites - 0.32 and 0.01 μM.

The flux of fresh water from one submarine spring was estimated at about 15 thousand m³ per day by obtained data.

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