# Radiological investigation in the Far Eastern seas of Russia

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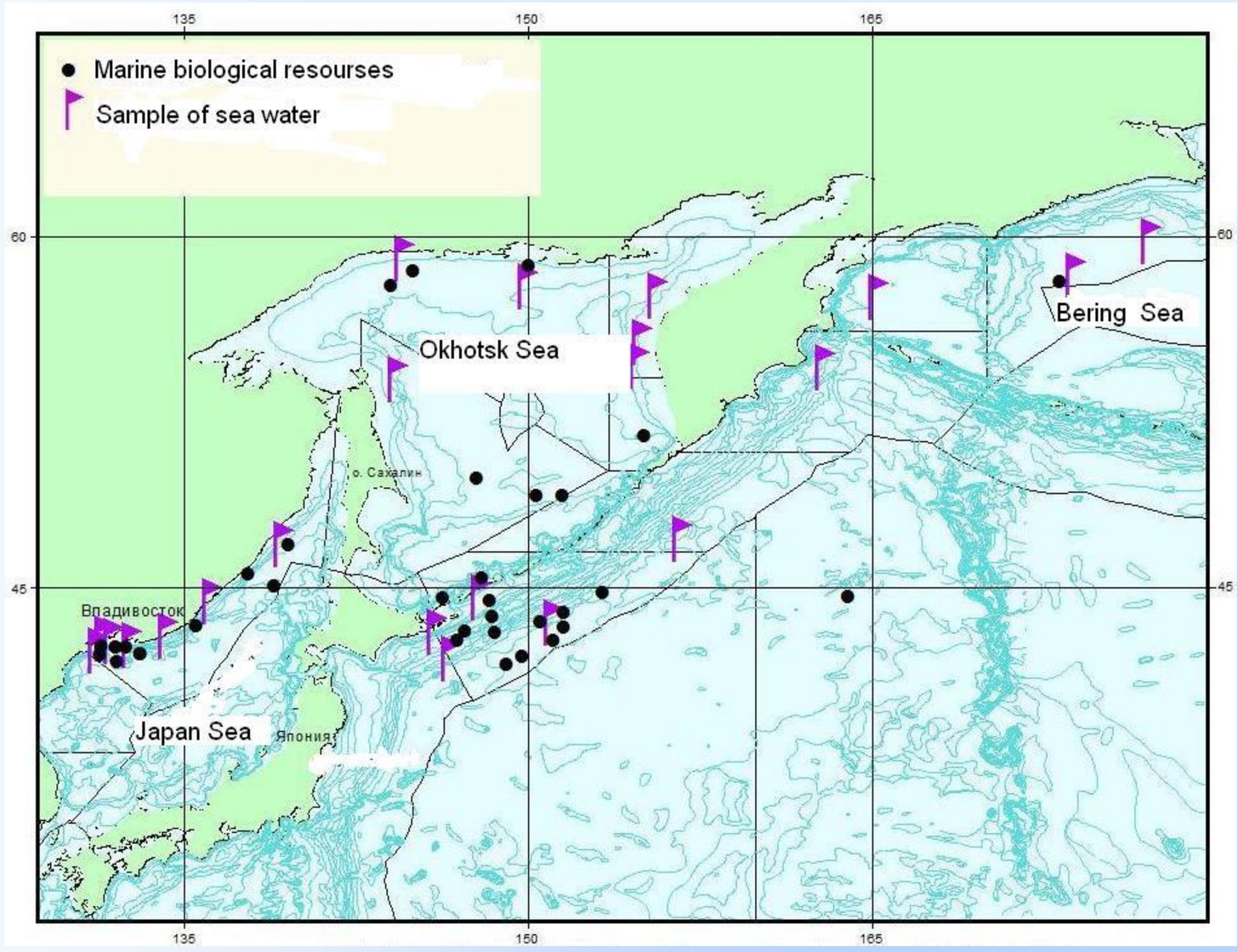



The Far Eastern Seas of Russia - the Japan, Okhotsk, Bering are the most important areas for fishing, invertebrates and algae. More than 2/3 of Russia's marine biological resources are mined here. In modern conditions, changes in marine ecosystems occur, as a result of global processes, and in connection with anthropogenic impact.

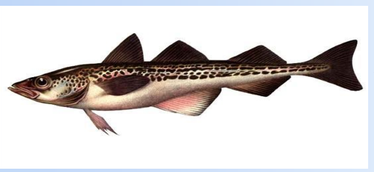
Part of a set of works for monitoring the state of the marine environment is the research of radioactive contamination of aquatic organisms and their habitats in the waters of the Far Eastern basin that have fisheries value. Monitoring of the radiation situation in the operational areas of the economic zone of Russia in the Japan, Okhotsk and Bering seas are conducted during marine expeditions of vessels of TINRO-Center. In 2015 from March to November it was done 6500 measurements of background radiation in air, seawater and catches. Background radiation was 5 to 12 mcR/h, i.e., was normal.

## Methods

Determination of radionuclides was performed by the radiochemical method with a subsequent measurement of activity of isolated radioisotopes Cs-137 and Sr-90 on the spectrometer.

## Results

The results of the investigation of concentration of artificial radionuclides in seawater samples from the field showed that the concentration Cs-137 and Sr-90 within each sea is slightly differed according to the stations (within the error of determination). Average annual radionuclide concentrations are decreased from the Japan to the Bering Sea: from 1, 5 to 1.2 Bq/m3 for Cs-137 and from 1.2 to 0.9 Bq/m3 for Sr-90. We can conclude The average annual concentration in surface waters in areas of observation in 2015 due to the artificial radionuclides Cs-137 and Sr-90 were within the regional technological level due to global contamination of the hydrosphere. It was examined the main commercial fish of the Far Eastern basin on the content of toxic radionuclides Cs-137 and Sr-90 in the sea of Japan, three species of flatfishes, Pollock, Atka fish, in the sea of Okhotsk – is Pollock, Pacific herring, Pink salmon, in the Bering sea is Pollock, Cod. The content of Cs-137 and Sr-90 were not significantly different in the samples from different fish species: the specific activity of Cs-137 ranged between 0.4 - 1.2 Bg/kg and Sr-90 from 0.6 to 1.0 Bg/kg w. w. well below the allowable levels of radionuclides Cs-137 and Sr-90 at the sanitary standards of the Russian Federation (130 and 100 Bg/kg, accordingly).



***Pollock***

***Cod***

***Flatfish***

***Pacific herring***

***Atka fish***

***Pink salmon***

Thus, the radiation environment in fishing waters of the Far Eastern seas of Russia is assessed as sufficiently safe in the radiation-hygienic attitude.