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REPORT FROM THE "OSHORO MARU" ON OCEANOGRAPHIC AND BIOLOGICAL INVESTIGATIONS IN THE BERING SEA AND NORTHERN NORTH PACIFIC IN THE SUMMER OF 1955

II. Radioactivity of Sea Water*

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The measurement of the radioactivity of sea water was one of the items of the here-described oceanographic cruise (Motoda & Fujii, 1955). A litre of water was dipped from the surface at all hydrographic stations and, in addition, at st. Os 13 and 27 the water was also sampled from 50 metres depth. The position and the date of sampling are given in the table.

The water sampled was brought to the laboratory without any preliminary treatment whatsoever and used for the measurement of radioactivity in the laboratory. At the laboratory, before measurement, the water samples were treated after Miyake's carrier method (Miyake, Sugiura & Kameda, 1955) as follows: after adding 2g of solid ammonium chloride, 1 *ml* of the aqueous solution of iron alum (86.3 g/*l*) and 1 *ml* of barium chloride solution (17.8 g/*l*) to 1 litre of sample water, the water is heated to 60-70 °C with thorough stirring. A few drops of an alcholic solution of phenol-phthalein (1%) are added as an indicator. Then ammonium hydroxide solution (1 : 1) is carefully dropped until a faint pink colour appears. After two minutes' boiling, the sample is allowed to stand for one or two hours at room temperature until precipitate settles. The precipitate is filtered under suction on a round filter paper (dia. 4 cm) and dried in a desiccator.

The measurement of radioactivity was made by putting the precipitate kept on the filter paper at a distance of 13 mm under the mica window of a G-M counter. The G-M counter used was Radiation Counter, Model 32, manufactured by Science Research Institute Ltd., Tokyo. The efficiency of the measurement of the G-M counter under the same geometrical condition was found to be 2×10^{-3} mμC/cpm. The measurement was made on January 12, 1956. At that time the back-scatterings counted 36±2 cpm and all of the counts obtained from the samples did not exceed the range of back-scattering. Thus, the radioactivity of the samples collected in the present cruise was hardly recognizable with the accuracy of the present measurememt.

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* おしよろ丸北洋調査報告 No.5 (1955年度)

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Position, date and depth of sampling and radioactivity of sampled water

No. of station	Date	Position		Depth	Activity*
		Lat.	Long.	m	cpm/l
Os 1	June 26	51-43′N	160-30′E	0	0
Os 2	27	52-52′N	161-50′E	0	0
Os 3	28	53-00′N	164-00′E	0	0
Os 4	28	53-01′N	166-00′E	0	0
Os 5	29	53-00′N	168-00′E	0	0
Os 6	30	53-02′N	170-00′E	0	0
Os 7	July 1	53-02′N	172-00′E	0	0
Os 8	1	54-30′N	170-33′E	0	0
Os 9	2	55-58′N	169-11′E	0	0
Os 10	3-4	57-41′N	167-59′E	0	0
Os 11	4	58-29′N	166-32′E	0	0
Os 12	5	59-00′N	170-00′E	0	0
Os 13	6	58-30′N	173-15′E	0	0
Os 13	6	58-30′N	173-15′E	50	0
Os 14	6	56-54′N	173-17′E	0	0
Os 15	7	55-10′N	173-17′E	0	0
Os 16	7-8	53-25′N	173-38′E	0	0
Os 17	8	53-10′N	175-04′E	0	0
Os 18	8	52-50′N	176-56′E	0	0
Os 19	9	52-28′N	178-40′E	0	0
Os 20	9	52-30′N	178-54′W	0	0
Os 21	10	53-14′N	178-40′E	0	0
Os 22	10	53-54′N	178-40′E	0	0
Os 23	11	53-03′N	178-52′W	0	0
Os 24	11	53-50′N	178-52′W	0	0
Os 25	11	55-34′N	178-48′W	0	0
Os 26	12	57-00′N	178-58′W	0	0
Os 27	12	58-49′N	178-43′W	0	0
Os 27	12	58-49′N	178-43′W	50	0
Os 28	14	57-16′N	171-50′W	0	0
Os 29	15	57-27′N	170-11′W	0	0
Os 30	15	57-26′N	167-05′W	0	0
Os 31	16	57-23′N	163-58′W	0	0
Os 32	16	57-16′N	161-40′W	0	0
Os 33	20	56-04′N	163-15′W	0	0
Os 34	20	54-46′N	165-19′W	0	0
Os 35	21	53-40′N	163-31′W	0	0
Os 36	21	52-58′N	162-19′W	0	0
Os 37	22	52-15′N	161-09′W	0	0

* Back-scatterings were 36±2 cpm.