

Rose Mary - Lets send this to ACBM members

Office Memorandum • UNITED STATES GOVERNMENT

TO : C. W. Shilling, M.D., Deputy Director
 Division of Biology and Medicine 405636

FROM : John N. Wolfe, Chief, Environmental
 Sciences Br., Div. of Biology & Medicine

SUBJECT: REPORT OF BIOLOGICAL PROGRAM OF
 PACIFIC PART OF HARDTACK

SYMBOL: BMES:JNW

DATE: October 30, 1958

R copy to [unclear] 11/4/58

You will recall that the biological program of the Pacific part of Hardtack was not presented at the ACBM meeting October 20 due, apparently, to time limitations.

Since Dr. Seymour spent considerable time in finding out about these programs, I transmit the summary to you in order that you may be familiar with the program. Perhaps you may wish to send it to the members of the ACBM.

I. Japanese tuna samples. Fourteen hundred samples from the Japanese fishery of tuna caught between March 23 and August 20, 1958, from over 100 locations in an area extending from the equator on the south to Japan on the north and from east of the test site on the east to the Philippines on the west have been processed and counted. Tissues sampled include dark muscle, light muscle, skin, bone and a limited number of liver samples. The maximum count of gross beta for all samples was 15 d/m/g of wet liver; for muscle, the maximum was 8 d/m/g and the average about one half this value. Practically all of the activity can be accounted for from K^{40} but a trace of Zn^{65} was also present. The sampling will continue until the end of October, unless requested to do otherwise, by which time 2600 samples will have been collected.

II. Rongelap ecology program. This is a long range study of basic ecological problems but also provides information on the current level of radioactivity in food items of the native diet and the background radiation. From the August field trip the following information, relative to Hardtack, is available. There was no apparent decline in background from the March values which would indicate that there may have been a very light fallout since some decline would be expected normally. Furthermore, tungsten was identified in Rongelap lagoon plankton and on the leaves of Scaevola. The background levels are low and for all surveys beginning in 1954 are tabulated in summary on a sheet that is in the Rongelap file. The strontium levels (strontium units) for the coconut crabs remained relatively unchanged (See Rongelap file).

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III. Rehoboth oceanographic survey. This program was designed to follow the distribution of radioactivity in water, plankton and fish following a Hardtack event. Hydrographic data to accompany the radiobiological data were provided by ONR and the Hydrographic Office. Sea water monitoring was carried on by the Naval Medical Research Institute and was supported by an AEC contract. All of the objectives were not attained because of contamination from other tests both before and after the event being studied. The Rehoboth is a Hydrographic Office vessel.

IV. Collete oceanographic survey. The Collete survey was of the restricted area established for the Hardtack series. As the Hardtack program in the Pacific came to an unexpected early close the plans for the post test survey were moved forward nearly a month. Information on the radioactivity of plankton and of water by depth and by station was radioed from ship to Eniwetok and relayed to Gordon Dunning for the evaluation of hazard. In general, the activity increased from southeast to northwest, the levels of highest activity being found north of Bikini and Eniwetok and somewhat to the west. The Collete is a U.S. Navy Destroyer.

V. Silverstein oceanographic survey. The Silverstein survey was an extension of the Collete survey from the restricted area westward to Guam, a distance of about 1100 miles from the Pacific Test Site. In addition to collecting samples of water, plankton and fish, work aboard ship included beta counting and gamma ray spectroscopy of a limited number of samples. The levels of radioactivity were similar to the levels observed in the 1956 Marsh survey that was made at relatively the same time in relation to the testing period. However, in 1958 radioactive samples were collected somewhat farther to the westward. A "hot spot" that was observed during the Collete survey was believed to have been observed during the Silverstein survey 30 days later at a point 240 miles farther to the westward, a rate of advance of about 7.3 miles per day. The Silverstein is a U. S. Navy destroyer.

VI. Off test-site atolls. In addition to samples from Eniwetok, Bikini and Rongelap samples of natural food items have been obtained at outlying atolls where weather stations had been established. These include Wotho, Kapingamarangi, Ujelang, Ponape, Utirik and Tarawa. From these samples information, either positive or negative, on the geographical distribution of fallout may be obtained.

cc: Dr. Dunham
Dr. Dunning
Dr. Boss
Dr. Seymour

C. W. Shilling, M.E.

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cc: Dr. Dunham
Dr. Dunning
Dr. Ross

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DATE ▶	10/30/58				