[redacted] 405680

(68)

PLANS FOR A PROGRAM OF EVALUATION OF THE RADIOLOGICAL CONTAMINATION OF THE FAUNAL AND FLORAL SYSTEMS AT GREENHOUSE OPERATIONS

Prepared by : Lauren R. Donaldson
Director, Applied Fisheries Laboratory
University of Washington
Seattle, Washington

The work to be conducted by the Applied Fisheries Laboratory, University of Washington, under contract with the Atomic Energy Commission

November 6, 1950

R

Problem:

The 1946 tests at Bikini, during Operations Crossroads, provided some information on the radiobiological contamination of aquatic and terrestrial forms from the detonation of atomic bombs exploded over and underwater. Additional information was gathered at Eniwetok following the testing program in the spring of 1948 when the energy of the bombs was released over land masses, but adjacent to the water, so that the effect on both terrestrial and aquatic forms was evaluated.

Subsequent to the testing period at Bikini and Eniwetok expeditions have been sent to the two areas to study the basic problems associated with the distribution, assimulation, concentration and the effect of radioactive materials in the naturally occurring populations of plants and animals in the area.

These studies were made at Bikini during the summers of 1947, 1948 and 1949 and at Eniwetok during the summers of 1948 and 1949.

The data available from the studies now in progress has provided useful information, but is incomplete in many particulars. The objective of future studies, in connection with further tests, should be to provide the information needed to fill the gaps in presently available information. The most glaring shortage of useful data on radiological contamination of the natural fauna and flora by an atomic bomb burst is for the period immediately

[redacted]

following the detonation.

To evaluate this radiological contamination in the naturally occurring forms immediately following the bomb bursts, the following limited program of study is proposed.

Personnel:

A team of three experienced people in the life forms of Eniwetok Atoll and in radiation detection should be attached to the biomedical program of JTF 3.1. It is recommended that the following men be members of this team:

DONALDSON, Lauren R.	- biology, Applied Fisheries Laboratory
SEYMOUR, Allyn H.	- plankton, Applied Fisheries Laboratory
BIDDULPH, Orlin	- plant physiology, Washington State College
LOWMAN, Frank	- genetics, vertebrate animals, Applied Fisheries Laboratory

One of these men will be an alternate. They will have a scientific job to do, and their movements onto the shot island should not be unduly restricted.

Time:

The major emphasis will involve the first test. The team should be present at the shot island by D-10 day to make a preliminary survey of the area.

It will take from D+1 to D+14 for the team to make the needed observations and to collect material for further study. It is estimated that the time between shots one and two will be ample to accomplish this purpose.

Equipment:

A. To be supplied by JTF 3.1

1. One deep freeze for preserving the biological specimen. This refrigerator should have a minimum volume of 3 cubic feet.
2. 150 square feet of laboratory space in the biology medical area.
3. Two scaler units, preferably nucleometers.

B. To be supplied by Applied Fisheries Laboratory, University of Washington.

1. Approximately 100 pounds per man of laboratory equipment, containers for shipping material, chemicals, preservatives, rotonne, plus 40 pounds per man of personal gear. This is a total weight of 420 pounds.

Transportation:

1. Transportation to the Greenhouse site will be required for the three men and the equipment listed above under B.
2. Transportation each day to and from Japtan, and the shot island or those in the vicinity.

Budget Requirements:

No revision of the 1950-1951 budget of the Applied Fisheries Laboratory will be necessary.

Evaluation of the Data:

Following the completion of the preliminary study in the field during the testing program, the material and the specimens should be returned to the Applied Fisheries Laboratory, Seattle, Washington for detailed study and evaluation. The result of the studies would then be furnished the Atomic Energy Commission through the usual channels.