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SUMMARY OF OPERATIONS ON CONTRACT NO. W-28-094-eng-33

FOR THE MONTH OF JANUARY 1948.

404104

I. The basic program of the Applied Fisheries Laboratory of measuring the effect of X-rays upon aquatic organisms, was further expanded by the inclusion of amphipod experiments.

Sections I and II\*

Egg lots from the Fall 1947 spawning of chinook salmon adults from irradiated and control stock have continued developing. Mortalities have been recorded and the dead preserved for further study in all 15 lots. It is believed that Lot 13 of the controls and Lot 14 of the irradiated stock were not yet ready to be spawned and so should not be considered in the comparison because their high mortalities mask the difference that is evident when only the remaining 13 lots are considered. The average percentage mortality through January 31, 1948 for the 7 control lots was 6.5 compared to a value of 23 for the 6 lots from 100 r irradiated stock. The value of "t" was 2.26 which, for 11 degrees of freedom is slightly beyond the 5 per cent level, and is considered significant.

As these animals develop studies will be made of the numbers malformed and degree and kinds of abnormality. Some modifications from normal structure are now evident but it will be possible to determine the extent of variation from the normal with greater accuracy after the yolk sac period has passed and the active feeding period starts.

II. Basic X-ray studies were initiated during the month by exposing amphipods to varying amounts of X-ray irradiations. These studies were designed to more fully understand the effect of irradiations on various members of the animal kingdom.

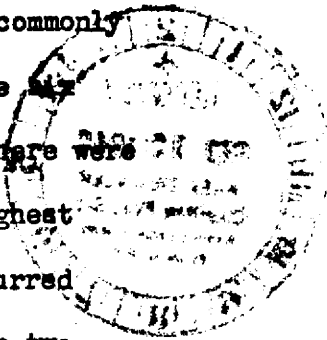
\*Section numbers refer to the Project Chronology Chart, revised January 9, 1947.

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On January 15 and 16, each of six groups of 20± amphipods commonly called beach hoppers or sand fleas, was subjected to X-rays. The doses were 150r, 900r, 6,400r, 16,000r, 32,000r, and 82,000r. There were also 6 control groups each consisting of 20 individuals. The highest dose rendered all immediately sluggish; the first deaths (3) occurred on the fourth day and all died within 10 days. In the next group two-thirds had died by the end of January. In the 16,000r group only two-thirds remained alive at the end of the month, but the dead were not all found, apparently having been eaten by less severely affected individuals. In the other 3 irradiated groups and in all control groups the amphipods were alive and active at the end of the month.



III. Study of the Bikini material collected during the summers of 1946 and 1947 continued. Radioautographs are being made of the material and a report is being formulated gathering this data together.

Recounting of some of the material has been started and a report on some special problems of absorption is being prepared.

IV. The mutual exchange of material and information between the Applied Fisheries Laboratory and the Hanford Engineering Works continues to function effectively.

Mr. Richard F. Foster and Mr. Philip A. Olson visited the Laboratory for conferences.

Dr. Albert W. Bellamy, Dean of Biological Sciences, University of California, Los Angeles and Mr. Robert J. Buettner, Principal Administrative Assistant, Atomic Energy Project, University of California, Los Angeles visited the Laboratory for conferences and discussion on project matters.

*Lauren R. Donaldson*  
 Lauren R. Donaldson, Director  
 of Contract No. W-28-094-eng-33

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AA Summary 11-2-94 RAB (unpublished) Date: 11-14-94
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