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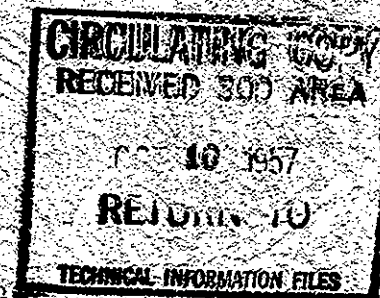
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**CONCENTRATION OF RADIOISOTOPES
IN COLUMBIA RIVER WHITEFISH
IN THE VICINITY OF THE
HANFORD ATOMIC PRODUCTS OPERATION**

BIOLOGY OPERATION

FEBRUARY 18, 1957

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RICHLAND, WASHINGTON

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CONCENTRATION OF RADIOISOTOPES IN
COLUMBIA RIVER WHITEFISH IN THE VICINITY OF THE
HANFORD ATOMIC PRODUCTS OPERATION

By

D. G. Watson, J. J. Davis CLASSIFICATION CANCELLED

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HANFORD ATOMIC PRODUCTS OPERATION
RICHLAND, WASHINGTON

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CONCENTRATION OF RADIOISOTOPES IN
COLUMBIA RIVER WHITEFISH IN THE VICINITY OF THE
HANFORD ATOMIC PRODUCTS OPERATION

Results of a study on the uptake of radioisotopes by Columbia River whitefish for the period from June 1950 to December 1956 are presented. Differences in concentrations of radioactive materials as related to geographical location, season, age, specific tissue, and concentration of reactor effluent in the river are discussed. Changes in concentration with cooking were determined.

Maximum concentrations of P^{32} on the order of $2 \times 10^{-4} \mu\text{c/g}$ of flesh were recorded for sportfishing areas immediately upstream and downstream from the Hanford Atomic Products Reservation. Human consumption of whitefish flesh at the rate of 2.7 pounds per week from public fishing areas during the fall months would produce maximum permissible concentrations of P^{32} .

INTRODUCTION

The Rocky Mountain Whitefish, Prosopium williamsoni (Girard), is the most important food and game fish caught from the Columbia River in the vicinity of the Hanford Atomic Products Operation. The number of fishermen angling for this species in waters adjacent to HAPO has increased markedly during the past several years. Fishing intensity is greatest during the fall and winter when most other waters in this region are closed to fishing. On certain days during this period over one hundred persons have been observed fishing in sections of the Columbia River immediately above and below the HAPO reservation. An estimate of the relative economic importance and abundance of this species has been reported by Foster and Watson (1).

Radioanalysis of tissues from whitefish collected during 1952, in conjunction with the overall radiobiological survey of the Columbia River (2), showed that some of the fish taken from sportfishing areas upstream from the reactors contained relatively high concentrations of radioisotopes. An

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intensified study was consequently begun in 1953 to define the radiation levels in whitefish and to evaluate potential radiation hazards to man. This report includes data on the radioactivity of about 1500 whitefish collected from June 1950 to the end of 1956. Earlier findings have been reported by Olson and Foster (3) and Herde (4, 5). Additional data for 1951 to 1953 have been presented by Robeck, Henderson, and Palange (6).

LIFE HISTORY

Whitefish spawn in the late fall and early winter over gravel and rubble in swift water areas (7). The eggs hatch in one to three months. Maturity is reached in two to four years (7, 8), with females producing 5,000 to 7,000 eggs per pound of body weight (7). The young feed principally on zooplankton during the early stages, and later eat insect larvae and adults, crustaceans, molluscs and occasionally small fish. The life span for the local stock is unknown but individuals over nine years of age have been reported from other regions (8). The average weight of the fish collected during this study was 268 grams or 0.6 pound.

METHODS

Whitefish were sampled at twelve sites along the Columbia River from Trinidad, Washington to McNary Dam as shown in Figure 1. The locations of collecting sites are designated by numbers corresponding to the distance in miles from the mouth of the river (9) and in some instances are further defined by the names of towns or landmarks located in their proximity.

Most of the whitefish collected prior to 1953 came from the vicinity of Hanford (Station 362). During the more extensive study (1953-1956) attempts were made to obtain samples monthly from Priest Rapids (Station 391-396), F-1 (Station 367), Hanford (Station 362) and Ringold (Station 354).

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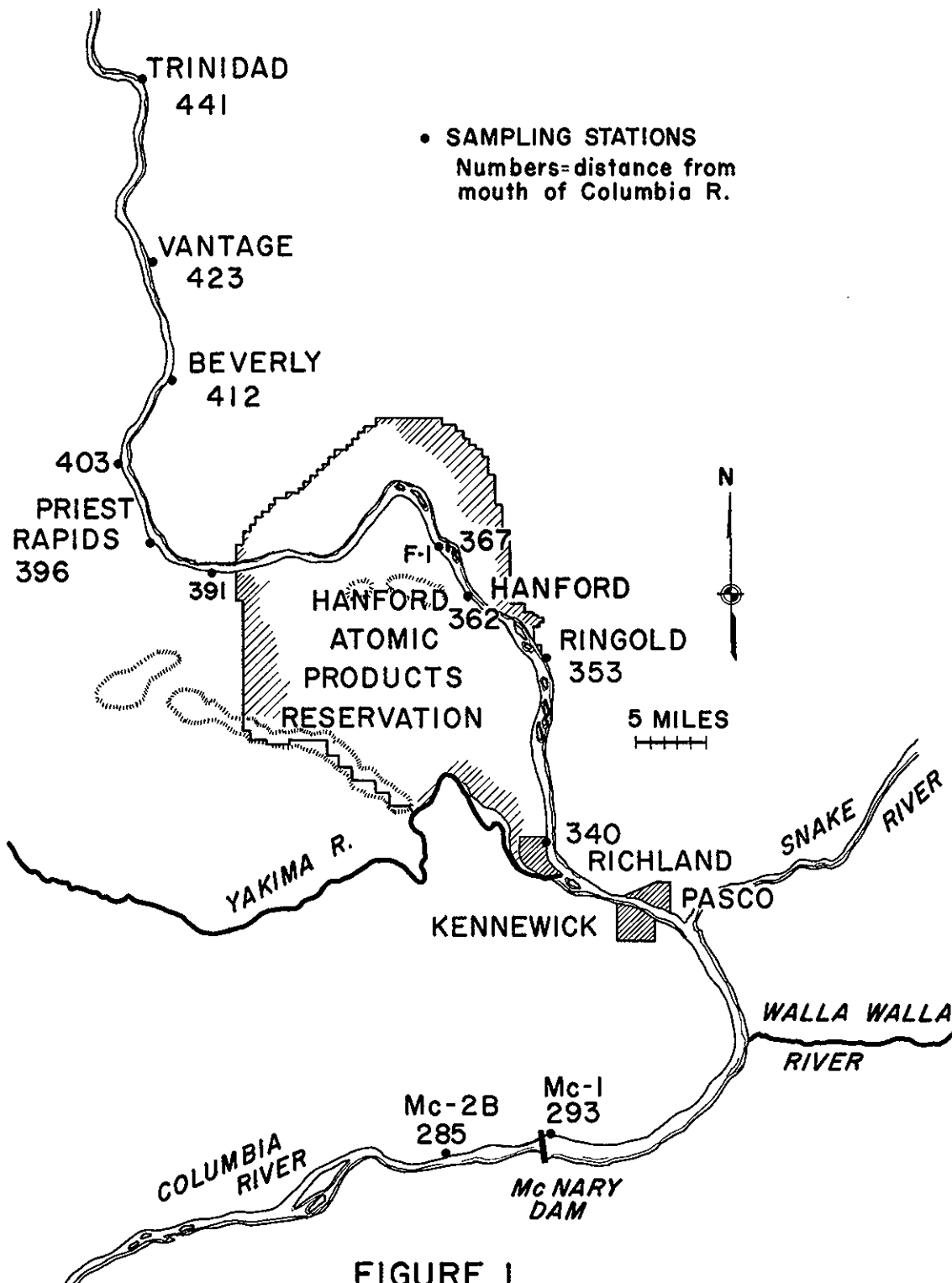


FIGURE I
WHITEFISH SAMPLING STATIONS

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The stations at Priest Rapids and Ringold were in popular sportfishing areas located immediately upstream and downstream respectively from the HAPO reservation. Station 367, located about a mile below 100-F reactor area and the station at Hanford, are sites within the restricted area where aquatic organisms have maximum concentrations of radioisotopes (2). Public access to waters within the HAPO reservation is prohibited.

Whitefish were collected with rod and line and in gill nets. Angling with artificial flies baited with fly maggots or caddisfly larvae was the most productive means of sampling. This method of collection was selective since only actively feeding fish were sampled and fish smaller than 12 centimeters in length were seldom caught. It was directly comparable, however, to fishing methods employed by sportfishermen. Swift water and rough bottom made the use of gill nets impractical at most stations although they were used at Hanford and in the backwaters of McNary Dam where current velocities were low.

Efforts were made to obtain at least ten fish each month from the four major sampling locations. It was not always possible to catch this number. Samples were easiest to obtain during the fall and early winter while poor catches were usually associated with extremely low water temperatures or freshet conditions.

Four tissues - scales, muscle, liver and bone were routinely analyzed for total beta emission; other tissues such as kidney and gonads were occasionally tested. Scales, liver, and bone usually had higher concentrations of radioactive materials than other tissues. Muscle was tested because it was the part of the fish consumed in quantity by man.

Sample processing and counting methods have been previously reported in detail by Davis et al (2). They consisted essentially of dissecting from each fish 3 to 7 grams of muscle and liver, 0.4 to 0.5 gram of scales, and 0.1 to 0.25 gram of bone. The samples were digested with concentrated nitric acid,

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transferred to one-inch diameter stainless steel counting plates, reduced to ash and counted for gross beta activity in standard mica window g. m. counters. In the calculation of the amount of radioactive materials in the samples corrections were made for geometry, self absorption, back scatter, air and window absorption, self scatter and radioactive decay.

Data were analyzed statistically to test for differences between stations, between seasons, between juveniles and adults, and between the several years of the study. The values for scales were used in making most of these comparisons because they were the most consistent and had relatively high concentrations of radioactivity. Statistical treatment was made difficult by wide variations in sample size, large differences between seasons and the discontinuity in sampling frequency. In testing differences, geometric rather than arithmetic means were employed to reduce the spread between extreme values and to produce a more normal distribution pattern.

CHARACTERISTICS OF RADIOACTIVITY IN WHITEFISH

Phosphorus 32 is responsible for 60 to 90 per cent of the total concentration of radioisotopes in Columbia River fish and invertebrates (2, 3, 4, 5, 6, 10, 11), although this isotope accounts for only 0.44 per cent of the total activity of reactor effluent (2). Radiochemical and radiodecay curve analyses show that P^{32} is the principal radioisotope in whitefish tissues. These results were obtained by beta-counting and radiochemical methods. Recent advances in gamma-ray spectrometric analyses by the Analytical Chemistry Operation have demonstrated the presence of substantial quantities of k-capture, gamma-ray emitting isotopes, including Zn^{65} , Cr^{51} , and Mn^{54} . Significant concentrations of Fe^{59} , Na^{24} , Sc^{46} , Co^{60} , and Cu^{64} were detected. Results of these analyses are presented in Table 1. It must be emphasized that the values shown in this table were obtained from composite tissue samples of five fish collected at the same time from a single sampling site during the late winter.

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TABLE 1

Concentration of Radioisotopes in Whitefish at Hanford
February 1957

Tissue	Units of 10 ⁻⁶ µc/g Wet Weight												
	P ³²	Na ²⁴	Sc ⁴⁶	Cr ⁵¹	Mn ⁵⁴	Fe ⁵⁹	Co ⁶⁰	Cu ⁶⁴	Zn ⁶⁵	As ⁷⁶	ZnNb ⁹⁵	Cs ¹³⁷	Np ²³⁹
Liver	1000	48	1.6	42	X	7.4	6.3	-	200	-	X	X	32
Scales	(970)	X	-	39	1.3	13	X	-	210	-	X	X	X
Vertebral Bone	870	X	X	X	X	X	X	-	100	-	X	X	X
Gut	800	X	2.8	X	X	X	X	-	4900	-	X	X	X
Testis	760	310	25	X	X	X	X	X	53	X	X	X	X
Heart	720	X	X	X	X	76	X	130	61	X	X	X	X
Caudal Fin	670	X	2.9	X	X	15	4.7	-	340	-	X	X	X
Opercular Bone	630	X	X	X	X	X	X	-	100	-	X	X	X
Blood	480	260	14	X	X	47	X	98	99	X	X	X	X
Kidney	460	X	5.2	63	3.2	X	32	-	110	-	X	X	19
Stomach	420	X	3.4	36	8.4	4.5	4.8	-	230	-	13	X	X
Spleen	390	X	X	X	X	X	X	51	200	X	X	X	X
Ovary	260	-	2.9	X	X	47	11	-	220	-	X	X	X
Iris of Eye	X	X	X	X	X	X	X	560	1500	X	X	X	X
Retina of Eye	260	X	16	X	X	X	X	X	1800	X	X	X	X
Brain	230	X	2	X	X	X	X	-	30	-	X	X	X
Skin	220	X	2.3	X	X	X	X	-	250	-	X	X	X
Muscle	(160)	40	-	X	X	5.2	X	-	21	-	X	0.91	X
Gill Filaments	47	X	0.15	1200	X	24	X	-	130	-	X	X	X

- no analyses made
x below detectable limits
() estimated concentration of P³²

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Consequently they may not be representative of all locations and seasons of the year. Subsequent analyses are to be made to determine geographical and seasonal variations. Radiozinc was present in all tissues tested and greatly exceeded the concentration of P^{32} in the gut and parts of the eye. The other gamma-ray emitting isotopes were found only in specific tissues and their concentration was usually much lower than that of P^{32} .

Typical radioactivity decay curves of beta emitters in tissues of whitefish collected at Priest Rapids and Station 367 are presented in Figures 2 and 3. Some fish from Priest Rapids contained appreciable amounts of radioisotopes, an indication that they had migrated upstream from areas exposed to reactor effluent. The short half-lived isotopes, principally Na^{24} , evident in fish from Station 367 were not present in samples from Priest Rapids. This indicated that the time elapse from exposure to effluent until sampling of these fish from Priest Rapids was sufficient for the radioactive decay or biological elimination of these elements to reduce the quantities below detectable limits. An unidentified isotope or combination of isotopes with a half-life of about 160 days was present in muscle samples from Station 367 but not in those from Priest Rapids, showing that this fraction had a relatively short biological half-life.

GEOGRAPHICAL DISTRIBUTION OF RADIOACTIVE MATERIALS

The differences in levels of concentration of radioactive isotopes in whitefish with respect to sampling location followed the same general pattern reported for other river animals (2). These differences were shown to be real by statistical analysis. The trends in the geographical distribution of radioisotopes in whitefish for October, the month when maximum values often occur, are presented in Figure 4. Highest values occurred at Station 367 which received the combined effluents of all reactors and the channeled effluent of the 100-F reactor (10). The concentration of radioactive materials

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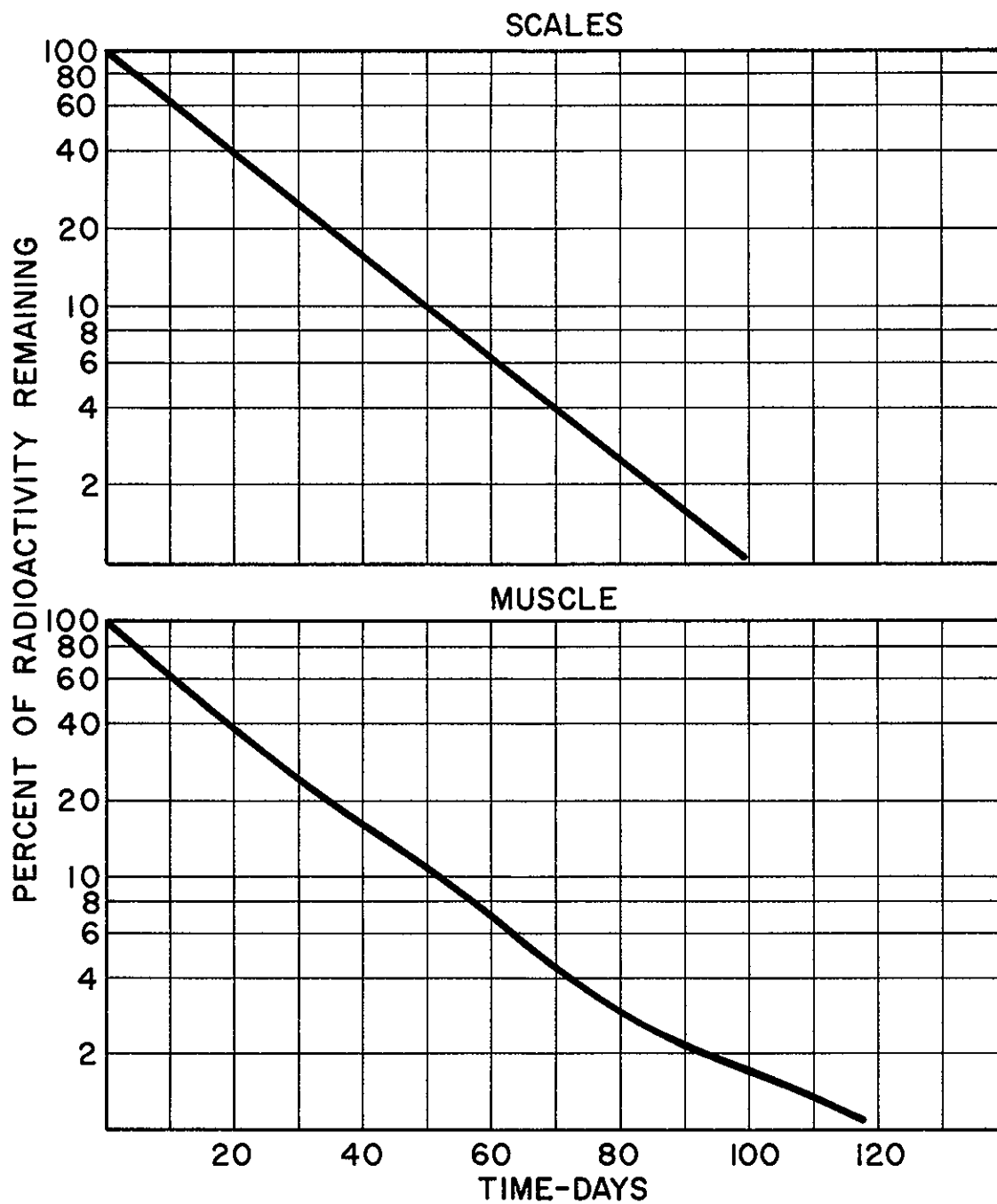


FIGURE 2
RADIOACTIVITY DECAY IN SCALES AND
MUSCLE OF WHITEFISH FROM
PRIEST RAPIDS

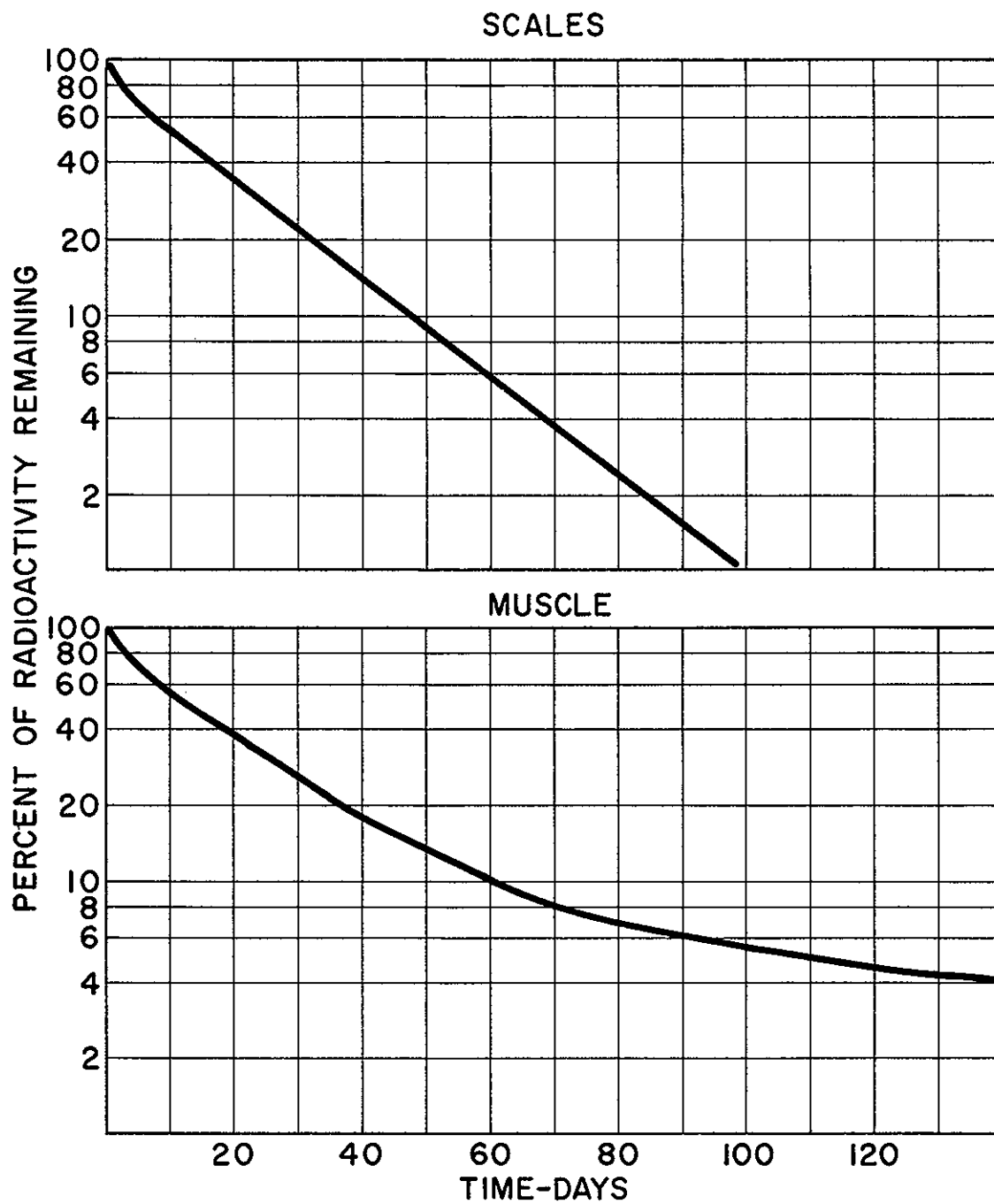


FIGURE 3
RADIOACTIVITY DECAY IN SCALES AND
MUSCLE OF WHITEFISH FROM
STATION 367

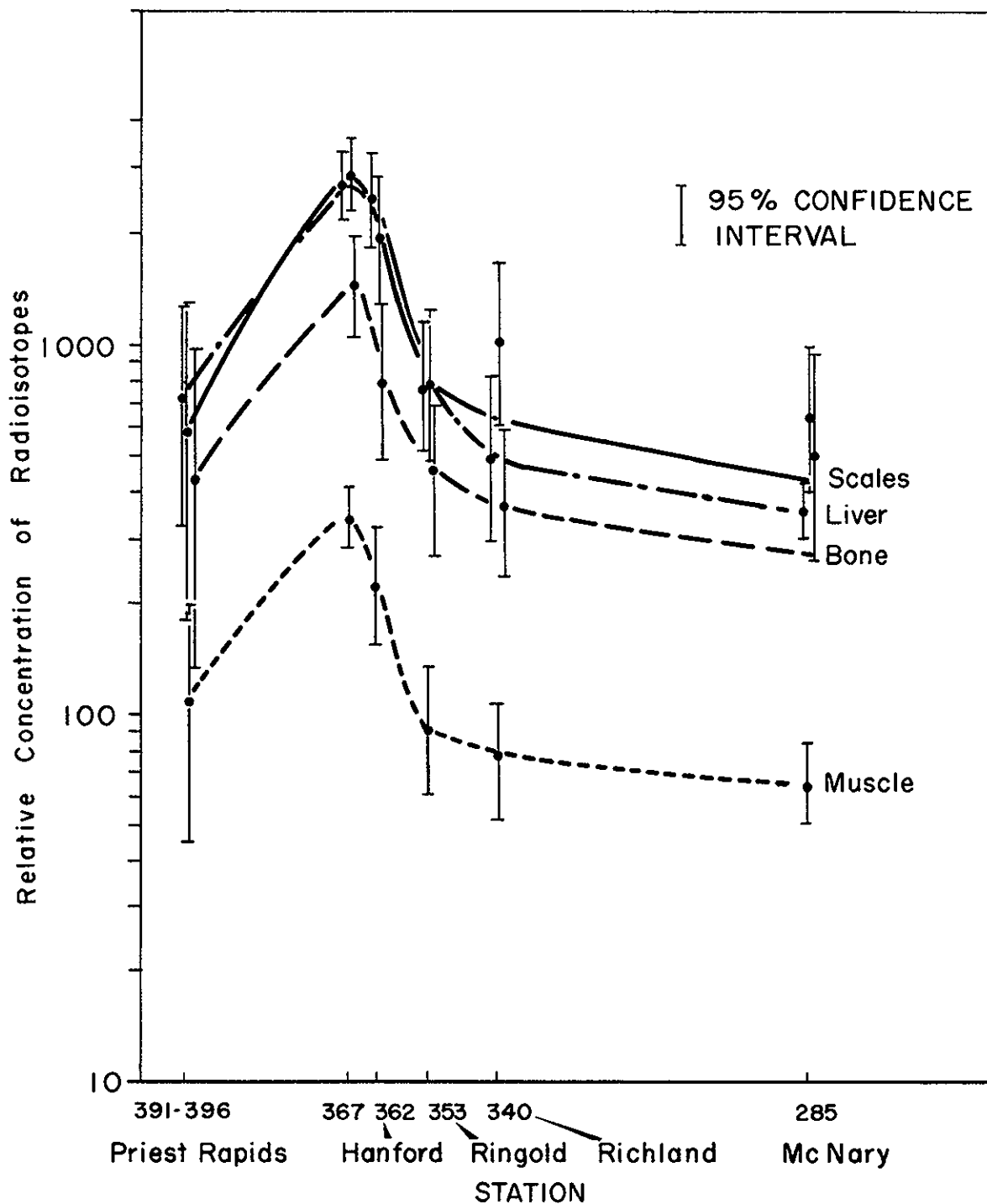


FIGURE 4

GEOGRAPHICAL DISTRIBUTION OF RADIOISOTOPES-
ADULT WHITEFISH OCTOBER 1954 & '55

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became progressively less with distance downstream from this location. The anomolous position of scales at Richland and of bone at Station 285 was probably the result of sampling mischance.

An exception to the general pattern of geographical distribution of radioisotopes for river organisms was noted in samples of whitefish collected at Priest Rapids. As indicated previously, whitefish from this station, which is located upstream from all effluent outfalls, often had concentrations of radioisotopes greater than those found in other aquatic animals of the same region (Table 2). The concentration of radioactive substances in individual fish collected at this location were occasionally greater than those from Station 367 or Hanford. This was caused by the upstream migration of whitefish from areas receiving reactor effluent. The extent of migration was limited, extending only 25 to 30 miles upstream from the 100-B reactor. The proportion of whitefish containing radioactive substances to those with background levels of radioisotopes decreased with distance upstream from Priest Rapids (Station 396).

Figure 5 shows the per cent of adult whitefish collected at Priest Rapids with greater-than-background concentrations of radioisotopes*. Two major periods of migration occurred, one in the fall and the other in the spring. The fish moving upstream in the fall were mostly spawning adults while the spring migration contained many immature fish. Similar patterns of migration were shown by the counts of whitefish ascending McNary Dam, particularly during the fall (12). Over 70 per cent of the total annual number of whitefish moving upstream over the dam pass during October and November.

* Concentration of radioisotopes in non-migratory animals at Station 391-396 usually was less than $2 \times 10^{-5} \mu\text{c/g}$ (2). This value was considered as background at this location. Herde (5) has reported concentrations of naturally occurring K^{40} as high as $13 \times 10^{-6} \mu\text{c/g}$ in muscle of Columbia River fish.

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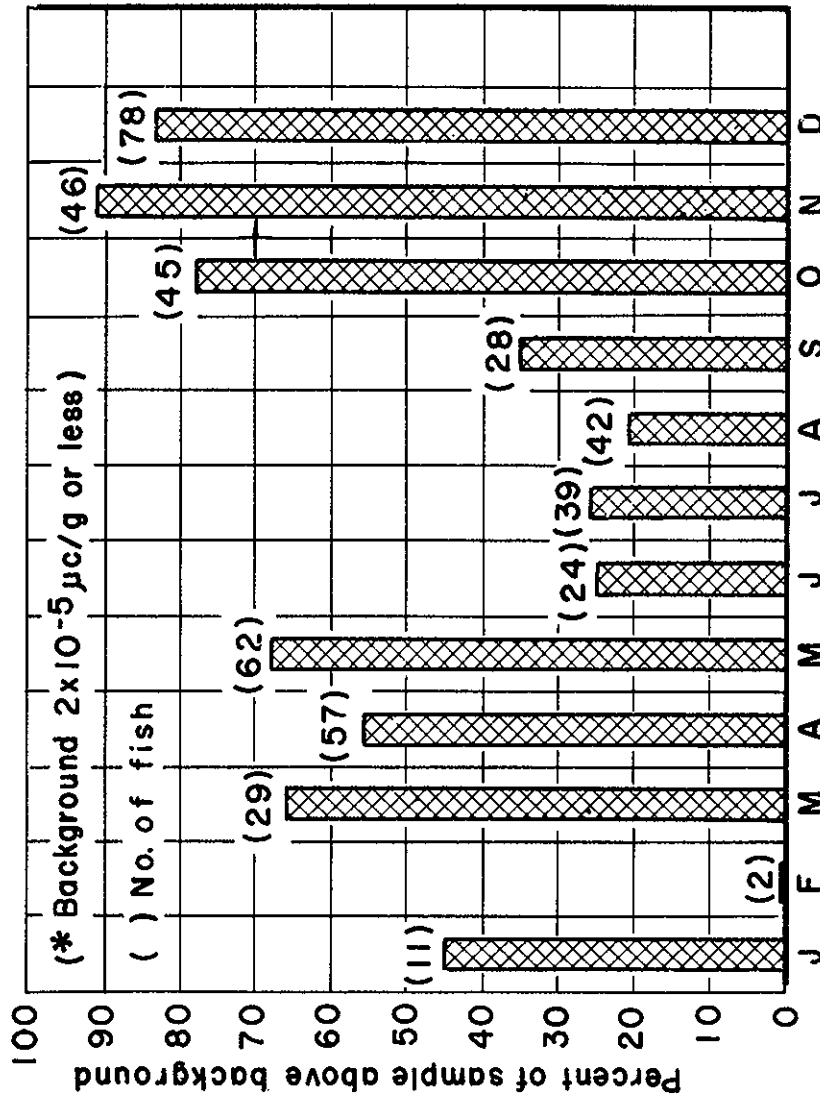
TABLE 2
Concentration of
Radioisotopes in Whitefish Tissues and River Organisms
Station 391-396 (Priest Rapids)

1953	Mean Concentration in Units of $10^{-6}\mu\text{c/g}$ Wet Weight			
	Whitefish scales	Whitefish muscle	Caddisfly larvae	Shiners
Aug.	59	7	15	3
Sept.	26	5	4	17
Oct.	358	63	2	7
Nov.	207	39	3	9
Dec.	456	56	7	2

The wide variation in concentration of radioactive materials in whitefish at any given station was produced by migration patterns, biological variation and differences in age and rate of food intake. This variation limited the value of small numbers of samples in estimating the uptake of radioelements by whitefish populations at any particular location. Values for all samples are given in the Appendix.

Movement of whitefish downstream as well as upstream was not determined in this study but probably occurs. Brown (7) has reported the migration of whitefish from streams and lakes to tributary streams during the spawning season. Post-spawning movement back to the original streams and lakes is implied.

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FIGURE 5

NUMBERS OF WHITEFISH FROM PRIEST RAPIDS WITH CON-
CENTRATIONS OF RADIOISOTOPES ABOVE BACKGROUND *

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SEASONAL VARIATION

The concentration of radioactive materials in whitefish showed a seasonal variation similar to that of other river organisms (2). The uptake of radioisotopes by fish is controlled primarily by water temperature and concentration of effluent in the river. The concentration of radioisotopes in river water samples fluctuated widely due to incomplete mixing of reactor effluent in the river and to the variability in reactor operating levels. To reduce this variation water values were estimated from the mean ratio of the concentration of radioisotopes in water samples to the total reactor power level per river flow. In Figure 6 the seasonal changes in the concentration of radioactive materials in whitefish are compared with temperature and the concentration of radioisotopes in water. Downstream from effluent outfalls, levels were usually at a maximum in October when temperatures and effluent concentration were high. They decreased during the low temperatures of winter, rose slightly with the higher temperatures in the spring and reached a minimum when freshet conditions of early summer reduced the concentration of radioactive materials in the river to its lowest level.

At stations upstream from effluent outfalls these trends were modified by migration patterns. A pronounced rise was apparent in the spring. The time of maximum and minimum concentrations was about a month later than at stations near Hanford.

RELATIONSHIP OF CONCENTRATION OF RADIOISOTOPES IN RIVER WATER TO THAT IN WHITEFISH

The construction of new reactors and the modification of existing facilities and operating procedures resulted in an increase in the amounts of radioactive materials discharged into the Columbia River during the

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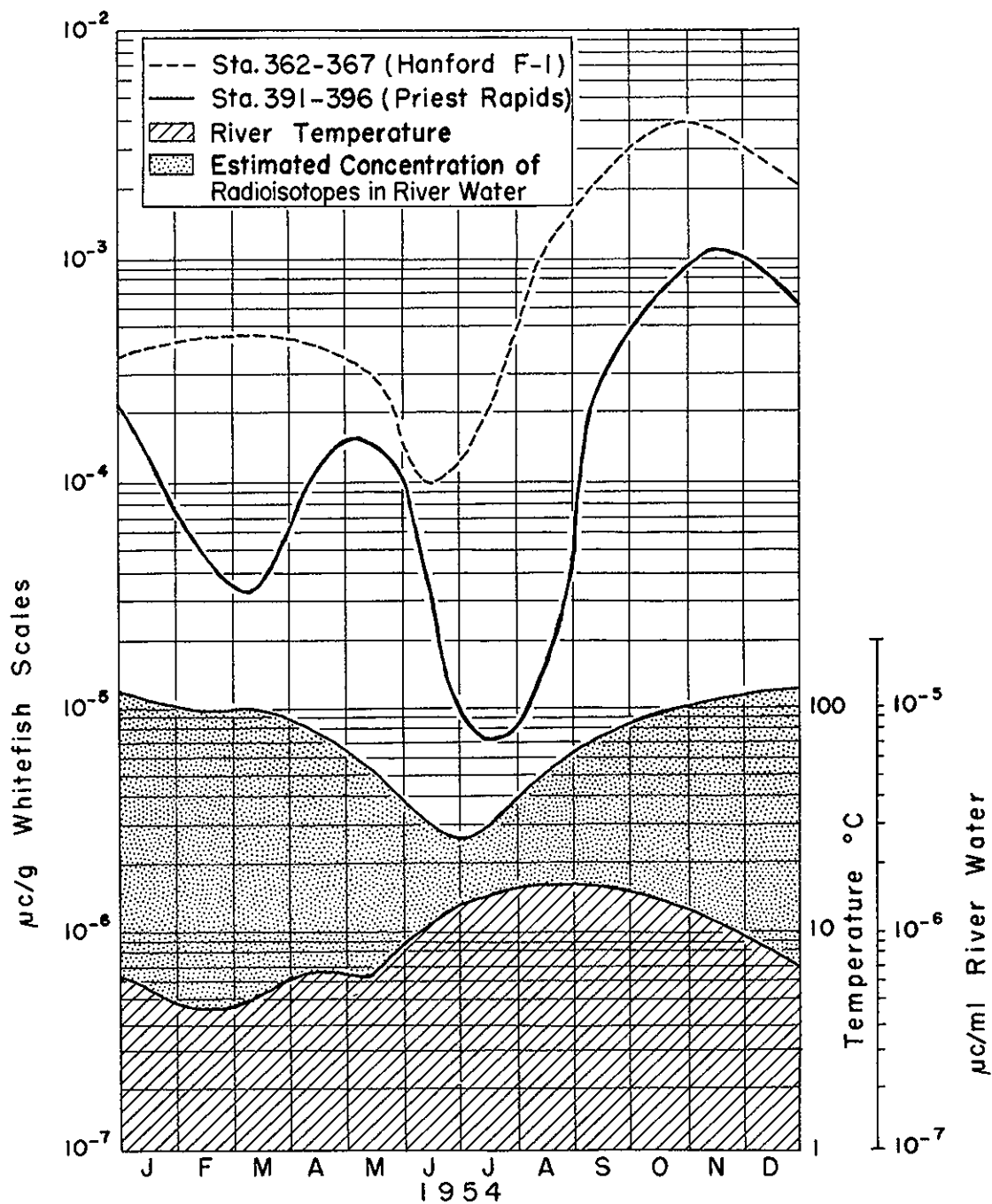


FIG. 6

SEASONAL VARIATION IN RIVER TEMPERATURE
AND CONCENTRATION OF RADIOISOTOPES IN
WHITEFISH AND RIVER WATER

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course of this study. These changes produced higher concentrations of radioisotopes in whitefish. The relationship of the concentration of radioisotopes in river water to that in whitefish scales is shown in Figure 7. Only the fall months, the period of maximum uptake of radioisotopes by fish, were considered. The concentration of radioisotopes in whitefish was generally proportional to the power levels when water temperatures were near optimum for this fish. The marked decline in the concentration of radioactive materials in whitefish from Priest Rapids during the fall of 1956 may have been caused by the shut-down of 100-B reactor from the last week in September until the first week in December. However, only small numbers of fish (5 or less per month) were taken during this period and may not have been representative of the population at this location. If it is assumed that the samples were adequate and that the reduction in the concentration of radioisotopes was due to the shut-down of 100-B reactor, then a migration distance on the order of 10 miles is indicated for a large segment of the contaminated population.

TISSUE RELATIONSHIPS

The relative concentration of radioactive materials in the various adult whitefish tissue varied among the different sampling locations. Differences in these relationships are shown in Figure 8, where the monthly average concentration of radioisotopes in liver is compared to that in scales, bone, and muscle. At Priest Rapids the concentration of radioisotopes in scales and bone usually exceeded that in liver, but at Hanford the liver was usually the tissue of maximum concentration. Values for Station 367 and Ringold were between these extremes.

The rate of turnover of phosphorus is greater in the liver than in scales and bone. Studies in which radiophosphorus was chronically fed to trout (13) showed that scales and bone retained P^{32} for a much longer time

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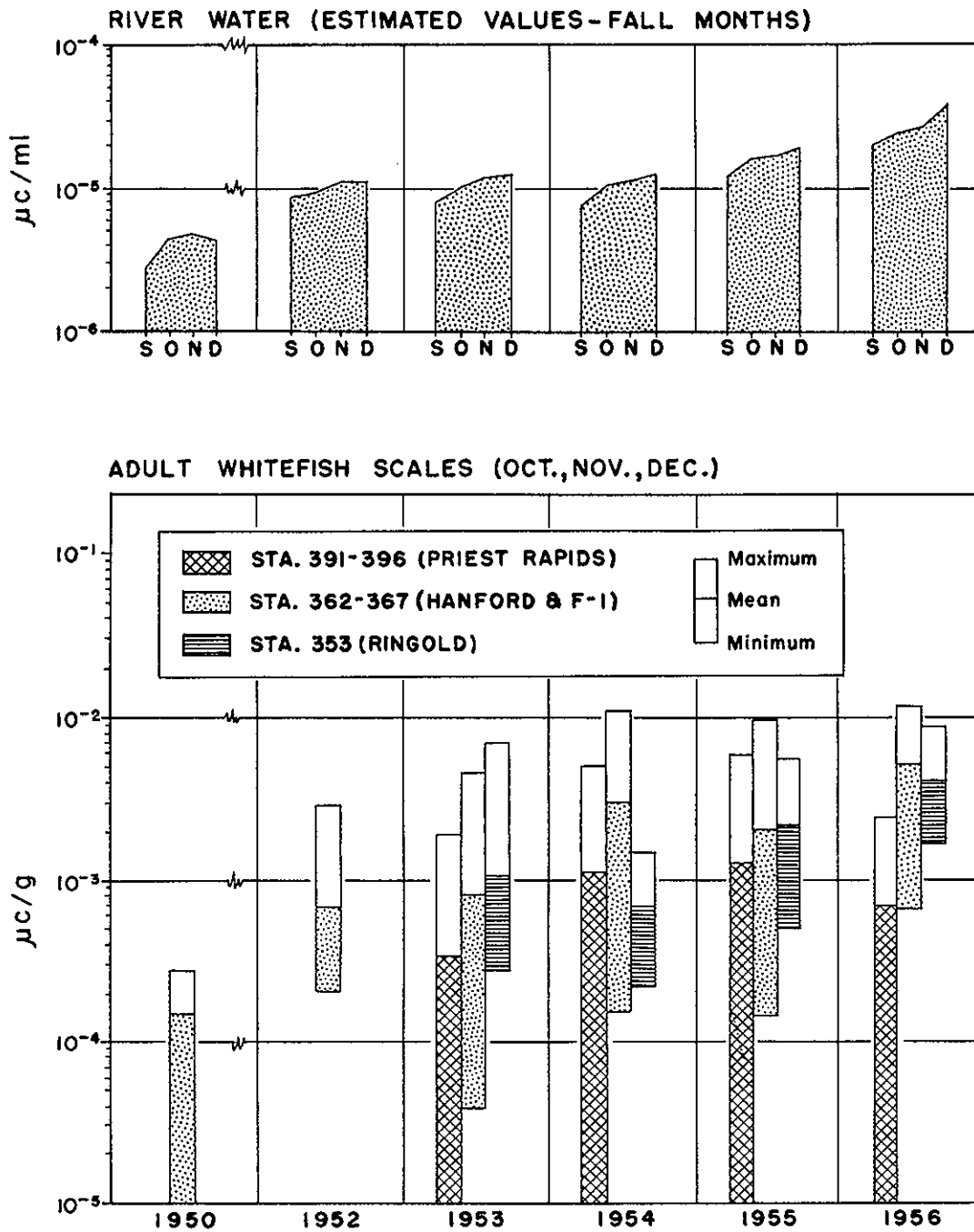
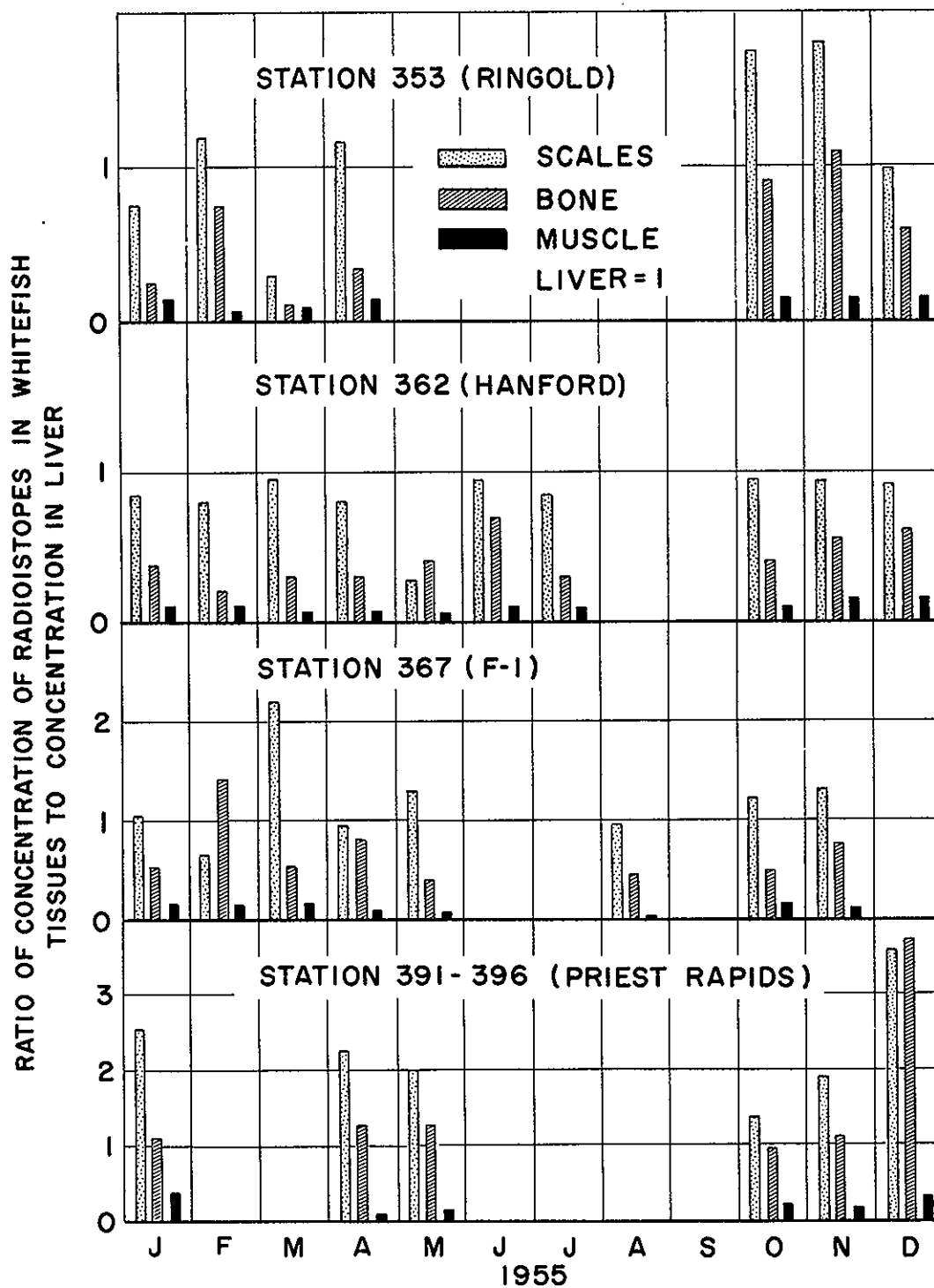


FIG. 7

YEARLY RELATIONSHIP OF THE
CONCENTRATION OF RADIOISOTOPES IN
WHITEFISH AND RIVER WATER

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than did liver, after the feeding of the radioisotope was discontinued. The time elapse from exposure to effluent until time of sampling thus accounts for the relatively low concentration in liver of whitefish collected at Priest Rapids.

At stations downstream from reactor outfalls the concentration of radioactive materials was often greater in liver than in scales or bone. The retention of P^{32} by liver is less than by scales or bone. However, animals that continuously ingest P^{32} will also have high concentrations of this element in liver. Rosenfeld and Heath (14) report that liver cells have a very high permeability for phosphate ions, a controlling factor in the uptake of phosphorus by soft tissues. Because of the fast rate of phosphorus turnover in the liver the P^{32} in this tissue will have undergone less decay than that in scales and bone.

No explanation is apparent for the differences in the relative concentration of radioisotopes in the liver between Hanford and Station 367 and Ringold as shown in Figure 8. The average concentration in liver at Hanford exceeded that for scales or bone for almost every month during 1954 and 1955. In 1956, however, liver and scales were about equally divided as the tissue of maximum concentration at this station.

COMPARISON OF JUVENILES TO ADULTS

The relative concentration of radioisotopes in juvenile whitefish tissues showed a different pattern than that in the adults. Some of these variations are presented in Table 3. Scales or liver were usually the tissues of maximum P^{32} concentration in the adults while scales and to a lesser extent bone, were the tissues of maximum P^{32} concentration in juveniles. Seldom did the values for liver exceed those of scales or bone in immature fish. The higher rate of growth of the juvenile fish may account for their greater concentrations of P^{32} in the phosphorus-rich hard tissues, scales and bone.

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TABLE 3

Variation in the Relative Concentration of Radioisotopes
in Juvenile and Adult Whitefish Tissues (1953-1956)

Tissue	Per cent Frequency as Tissue of Maximum Concentration							
	*Priest Rapids (Station 391-396)		Station 367		Hanford (Station 362)		Ringold (Station 353)	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
Scales	72	67	45	82	27	82	57	87
Liver	10	0	51	4	69	5	40	7
Bone	19	33	4	15	5	13	3	6

* Only values above background used.

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Juvenile fish also differed from the adults in the amounts of radio-phosphorus in their tissues. As shown in Table 4 the young had greater concentrations of beta emitters in all tissues tested. This again could be attributed to their higher growth rate. The greatest difference was in the bony tissues where phosphorus utilization is highest.

COMPARISON TO COARSE FISH

Although the concentration of radioactive materials was usually greater in whitefish than in other species of food fish, some of the coarse fish, particularly the herbivorous forms, had the largest amounts of radioactive substances in their tissues. In Figure 9 the concentration in whitefish muscle is compared with that in sucker muscle and in shiners.

The dissimilarity in the diets of whitefish and suckers was probably largely responsible for differences in concentration of radioactive materials in their tissues. Both feed continuously throughout the winter when the feeding rates of most other species, particularly the carnivorous forms, are very low. Suckers eat large quantities of algae and other plant material while whitefish feed primarily on animals. The concentration in aquatic plant life was usually higher than that of the animals and less dependent on river temperature. Rates of food consumption and growth may also have been controlling factors. Shiners, which were processed in their entirety had higher concentrations of radioisotopes in comparison to flesh of other fish due to the inclusion of the more highly contaminated bony tissues and gut contents in the samples. The earlier time of maximum concentrations in shiners may be due to differences in food habits, metabolic rate, and possibly to the inclusion of gut contents in the shiner samples.

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TABLE 4

Ratio of the Concentration of Radioisotopes in Juvenile
and Adult Whitefish Tissues (1953-1956)

Scales		Muscle		Liver		Bone	
Juvenile Adult	Std. Dev.	Juvenile Adult	Std. Dev.	Juvenile Adult	Std. Dev.	Juvenile Adult	Std. Dev.
4.9	+3.25	2.8	+1.69	2.0	+0.98	6.4	+5.69

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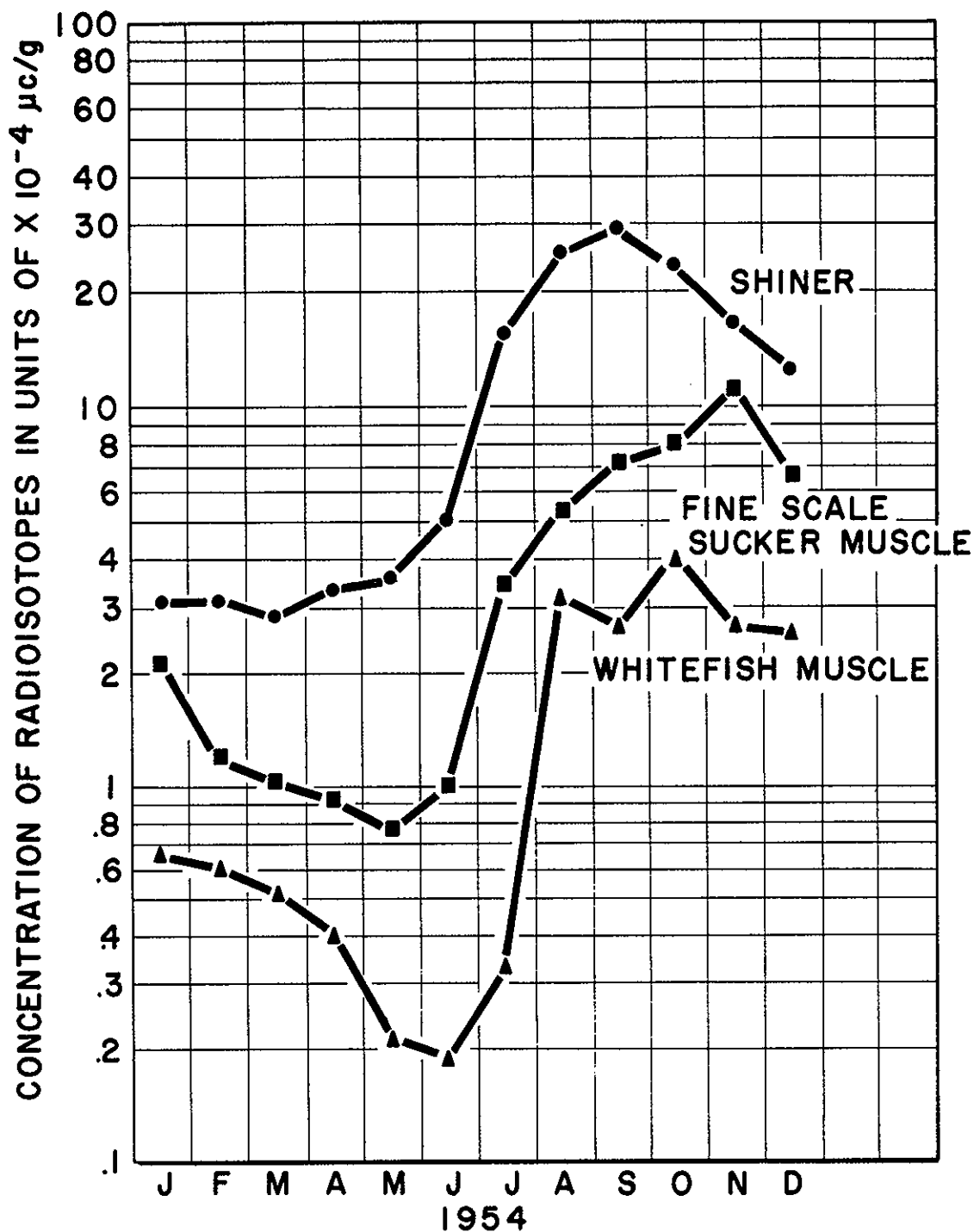


FIG.9

COMPARISON OF CONCENTRATION OF RADIOISOTOPES
IN WHITEFISH WITH THAT IN OTHER RIVER FISH

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RADIATION HAZARD TO WHITEFISH

At Station 367 and Hanford, the areas where maximum concentrations of radioisotopes occur in aquatic organisms, juvenile and adult whitefish received a yearly dose of about 20 rads and 5 rads respectively*. The gut received approximately 0.16 rad per day during the fall months. Dose rates of this magnitude are probably well within the tolerance limits to individual whitefish. Bonham et al. (15) reported only a slight increase in mortality in chinook salmon fingerlings that had received a single dose of 250 r x-rays. This same species showed no increase in mortality attributable to radiation damage when held in concentrations of reactor effluent greater than that normally found in the river (16). The chemical toxicity of the effluent presents a greater hazard to the aquatic life than does the concentration of radioactive materials in the river (1, 2, 11).

RADIATION HAZARD TO MAN

Whitefish, as mentioned previously, have the highest concentration of radioisotopes of any game fish in the Columbia River. At Hanford, during the fall, the concentration of P^{32} in whitefish flesh was 3600 times that in river water. The maximum concentrations of radioactive materials in flesh at Ringold and at sites within the reservation were $2 \times 10^{-3} \mu\text{c/g}$ and $3 \times 10^{-3} \mu\text{c/g}$ respectively. Average concentrations at these same locations during the fall months of 1953 to 1956 were $3 \times 10^{-4} \mu\text{c/g}$ and $4 \times 10^{-4} \mu\text{c/g}$. The mean fall values for flesh in 1956 were $5 \times 10^{-4} \mu\text{c/g}$ for Ringold and $6 \times 10^{-4} \mu\text{c/g}$ for stations within the reservation.

* Estimates of doses to fish and to humans eating fish flesh were based on the concentrations of radiophosphorus. Subsequent to the period covered by this study substantial amounts of gamma-ray emitting isotopes such as Zn^{65} , Cr^{51} , and Mn^{54} were detected in whitefish tissues by the Analytical Chemistry Operation. Significant amounts of Cu^{64} , Fe^{59} , Co^{60} , Sc^{46} and Na^{24} were also present. These analyses were not yet extensive enough for consideration in estimating dose.

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The hazard of eating whitefish was estimated from the maximum permissible limit of P^{32} in drinking water (17). The MPC in water is $2 \times 10^{-4} \mu\text{c/cc}$. At an intake rate of 2200 cc/day this would amount to 0.3 μc per week after the application of a safety factor of ten for off-plant personnel (18). The quantities of whitefish flesh that would have to be eaten each week to maintain maximum permissible concentrations are given in Table 5. These values were calculated from monthly mean concentrations of P^{32} in flesh. The rate of consumption necessary to produce maximum permissible limits from fish caught outside the reservation during the fall of 1956 was 2.7 pounds per week.

The average per capita consumption of fish as reported by Clark and LeBovit and summarized by Bustad and Terry (19) is 200 grams per week. At this rate of consumption the concentration of P^{32} in whitefish muscle would have to be $1.5 \times 10^{-3} \mu\text{c/g}$ to maintain a maximum permissible body burden. The mean yearly concentration of P^{32} at Ringold was $1.7 \times 10^{-4} \mu\text{c/g}$ or about one-tenth the amount necessary to produce a maximum permissible concentration in man. It is quite possible that some of the successful fishermen and members of their families may have eaten more than 200 grams per week during the peak of the fishing season.

The wide seasonal variation in the concentration of radiophosphorus in fish and the seasonal variation in fishing intensity limit the value of estimating the hazard to man from the yearly mean concentration of radioisotopes in fish flesh. At Ringold in 1956, for example, the mean fall (October, November, December) concentration of radioisotopes was $4.5 \times 10^{-4} \mu\text{c/g}$. The average for the remaining nine months was only $4.5 \times 10^{-5} \mu\text{c/g}$. A four fold increase in both of the above values would result in concentrations above the MPC during the fall while levels during the remainder of the year would be well within the prescribed limits. The fall is the season of optimum growing conditions for the whitefish. Therefore, any overall increase in the concentration of radioisotopes in their tissues will be disproportionately greater during this period than during the remainder of the year.

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TABLE 5

Rates of Consumption (pounds/week) of Whitefish Flesh
that would Produce MPC of P³²

Month	Based on the MPC in Drinking Water (0.3 μ c/week)											
	Station 391-396 (Priest Rapids)			Station 354 (Ringold)			Station 367 (F-1)			Station 362 (Hanford)		
	1954	1955	1956	1954	1955	1956	1954	1955	1956	1954	1955	1956
Jan.	97	110	140	--	7.7	14	0.6	5.3	5.3	--	4.5	12
Feb.	170	680	--	24	57	--	13	19	15	12	4.3	40
Mar.	14	230	68	9.6	42	29	7.9	11	12	6.1	13	29
April	140	68	62	--	17	23	11	12	23	11	20	29
May	19	10	110	21	19	27	--	5.5	12	34	15	32
June	--	--	140	--	--	42	--	--	14	48	5.3	18
July	110	--	140	--	40	34	--	--	34	--	11	19
Aug.	170	--	140	--	--	4.4	10	11	4.7	28	--	10
Sept.	170	--	52	--	--	--	1.7	--	--	1.3	--	--
Oct.	3.6	3.2	42	7.2	2.1	1.1	1.4	1.9	0.8	1.7	2.0	2.2
Nov.	7.5	5.0	8.9	5.7	2.1	1.1	1.1	1.4	1.3	1.3	3.9	0.8
Dec.	4.2	5.7	3.7	3.9	5.9	5.9	1.6	--	2.7	3.6	9.4	0.9
Oct.-Dec. Average	5.1	4.6	18	5.6	3.4	2.7	1.4	1.7	1.6	2.2	5.1	1.3

* Period of high sportsfishing intensity and maximum concentration of radioisotopes in whitefish tissues.

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The high fishing intensity during this season is another factor that makes it a potentially critical period. A three to four fold increase in the 1956 concentration at Ringold would indicate the advisability of closing this area to fishing or of reducing the amounts of P^{32} discharged into the river during this part of the year.

CHANGES PRODUCED BY COOKING

In order to define better the hazard to persons eating whitefish, a special study was conducted to determine the effect of cooking on the concentration of radioactive materials in edible whitefish tissues. Frying, one of the common methods of preparing fish for human consumption, was employed in this test. Twenty-three freshly caught whitefish, collected at Station 367, were divided into three groups and samples of scales, skin, muscle and bone were taken from each fish and processed and counted in the usual manner. The heads and viscera were removed and the fish were washed and blotted dry. They were then fried whole in vegetable oil on an open griddle. The first group was cooked with scales and skin attached; the scales were removed from the second group; and both scales and skin were removed from the third group. All fish were thoroughly cooked until the flesh could be readily separated from the bones. Samples of the same kinds of tissues that had been analyzed in the raw state were sampled after cooking.

In general, after cooking there was an increase in concentration of radioisotopes in the scales and skin and a decrease in muscle and bone. The results are summarized in Table 6. The mean decrease in the concentration in muscle was 13 per cent. Changes in the radioactive contamination of the tissues tested were about the same in all three groups. Removal of scales or scales and skin from fish prior to cooking did not effect the levels of radioactivity in the flesh.

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TABLE 6

Changes in Concentration of Radioisotopes in Whitefish
Tissues with Cooking (units of $10^{-6}\mu\text{c/g}$)

Group I (cooked with scales and skin attached)											
Scales			Skin			Flesh			Bone		
Raw	Cooked	Percent Change	Raw	Cooked	Percent Change	Raw	Cooked	Percent Change	Raw	Cooked	Percent Change
51	160	+214	31	41	+32	30	20	-33	58	58	0
160	340	+110	76	81	+6	66	37	-44	170	230	+35
240	730	+200	230	210	-9	75	67	-11	690	520	-25
490	1100	+120	210	510	+140	84	140	+67	850	780	-8
1300	1400	+3	230	330	+43	220	110	-50	910	930	+2
1200	660	-50	84	140	+67	85	51	-40	-	-	-
2600	1300	-50	150	240	+57	67	78	+17	-	-	-
Mean		+79	+49			-13			+1		

Group II (cooked without scales)											
			240	430	+80	340	240	-29	820	630	-23
			65	68	+5	19	16	-16	-	-	-
			210	220	+5	140	130	-7	1100	940	-15
			110	200	+82	94	190	+102	530	530	0
			180	67	-63	160	140	-13	-	-	-
			110	490	+345	280	66	-76	280	220	-21
			190	700	+268	430	150	-65	1500	1300	-13
Mean			+102			-15			-14		

Group III (cooked without scales or skin)											
						230	110	-52	450	350	-22
						15	14	-7	130	89	-32
						110	260	+136	680	470	-31
						180	86	-52	480	290	-40
						54	81	+50	250	340	+36
						69	29	-58	190	180	-5
						61	21	-66	55	32	-42
						9	8	-11	0	0	0
						41	28	-32	270	240	-11
Mean						-10			-17		

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The decrease in the concentration in flesh may be attributed to the breakdown of this tissue with subsequent loss of cellular fluid, as suggested by Hanson and Browning (20). Chappel (21) reports a weight loss of 7 to 33 per cent in grilled fish. The uptake of vegetable oil in which the fish were cooked may have also contributed to this decrease. The loss in bone was probably due to the uptake of fluid from surrounding muscle tissue and would not represent a true loss of radioactive contamination. The increase in scales and skin may be explained by the evaporation of water from these tissues and thus would not represent an actual loss of radioisotopes from these tissues.

Scales, skin and bone generally are not eaten so changes in these tissues are not of major significance. The flesh, which showed a reduction in radioactive contamination, is the part of fish eaten in greatest quantity by man.

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APPENDIX

CONCENTRATION OF RADIOISOTOPES IN
COLUMBIA RIVER WHITEFISH TISSUES 1950 - 1956

Station 441 (Trinidad)

Date	Standard Length in Centimeters	Weight in Grams	* Age	** Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
1-12-53	28	296	A	F	5		1	0								
"	24	176	A	F	8	2	2	0								
"	25	207	A	F	3	3	2	7								
"	27	272	A	M	0	3	1									
"	25	213	A	F	2	2	1									
"	23	158	A	M	4	3	0									
"	23	168	A	M	2	2	4									
"	26	202	A	F	1	2	7									
"	24	184	A	M	6	0	0									
"	24	170	A	F	0	1	0									
"	24	191	A	F	0	3	3									
"	26	179	A	F	4	3	4									
"	24	161	A	M	300	25	51									
"	26	212	A	F	3	2	3									
"	24	182	A	F	6	4	3									
"	24	164	A	M	6	4	0									
"	24	196	A	M	5	4	0									
"	24	150	A	M	0	5	3									

* A - Adult
J - Juvenile

** M - Male

F - Female

Station 412 (Beverly)															
Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight															
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
12-17-52	23	188	J	F	3	3	2	7							
1-3-53	32	449	A	F	85	11	7	79							
"	29	379	A	F	0	4	1	0							
"	29	313	A	F	4	4	0	0							
"	27	171	A	F	0	3	2	7							
"	25	222	A	M	2	2	1								
"	24	207	A	F	16	0	7								
"	23	176	A	F	0	4	2								
"	25	213	A	F	1	1	3								
"	23	151	A	M	0	15	4								
"	27	273	A	F	65	1	18								
"	26	222	A	F	0	1	1								
"	26	210	A	F	2	3	0								
"	27	262	A	F	1	3	1								
"	26	263	A	F	52	7	9								
"	24	178	A	F	0	6	2								
"	24	198	A	F	1	3	29								

Station 403

Date	Standard Length in Centimeters	Weight in Grams	*	Age	** Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
						Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
11-23-52	-	-	A	-	-	2	2	16								
"	-	-	A	-	-	48	5	470								
12-15-52	27	307	A	F	710	96	310	590	190		290					
"	27	301	A	F	17	0	19	0	0						14	
"	29	347	A	F	0	2	56	70							18	
"	26	257	A	F	0	2	420	6							6	
"	27	232	A	M	0	0	15	530								
"	28	422	A	F	0	2	8	3	0							
"	23	150	J	F	1100	180	660									
12-17-52	24	175	A	F	-	1	0	1							3	
"	30	359	A	F	4	3	0	6								
"	24	223	A	F	300	48	130	460								
"	24	200	A	F	31	12	19	39								
"	23	191	A	F	15	1	16	0								
"	16	51	J	-	3100	270	900	5500								
4-15-53	27	294	A	F	0	3	2	13			0					
"	27	319	A	M	7	2	5	0			3					

* A - Adult ** M - Male
 J - Juvenile F - Female

Station 403 continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
4-15-53	20	329	A	F	0	14	1	2				0				
5-6-53	31	415	A	F	4	2	2	0								
"	29	339	A	F	13	4	2	0								
8-17-53	27	303	A	F	6	4	15	15								
"	25	233	A	F	0	4	6	1								
"	29	286	A	M	0	8	3	0								
"	25	219	A	F	0	8	4	4								
"	28	317	A	M	3	3	8	9								
"	26.0	240	A	M	4	4	6	7								
10-6-53	28	396	A	M	3	6	5	9				7				
"	32	585	A	M	12	6	4	2				7				
"	25	278	A	F	2	5	15	3								
12-1-53	24	190	A	M	1800	140	950	840								

Station 403 continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-21-53	25	205	A	-	9	2	0	0								
4-5-54	24	180	A	F	320	95	390	200								
"	24	201	A	F	0	6	2	0								
"	28	308	A	F	1	2	2	11								
"	30	342	A	M	3	2	1	1								
"	34	540	A	F	4	5	2	0								
"	31	365	A	F	3	5	2	0								
"	24	185	J	M	7	2	1	0								
"	25	197	J	M	5	6	5	14								
1-7-56	30	326	A	F	2	4	1	1								
"	28	248	A	F	3	3	4	0								

Station 391-396 (Priest Rapids)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
4-8-52	30	300	A	F	1	1	1	0	0		0				2
"	21	130	J	-	340	31	150	190			100				84
"	22	137	J	-	400	47	240	310			136				170
"	-	59	J	-	1200	64	310	500							
"	23	150	J	-	330	31	180	290							
"	21	127	J	F	430	44	110	190							
"	21	134	J	-	860	60	220	320							
"	22	135	J	F	200	15	130	100							
"	16	49	J	-	390	27	130	330							
4-30-52	27	252	A	F	2	2	0	0	4		3				1
"	34	502	A	F	0	2	2		1		0				1
"	21	153	J	M	1500	120	440	770			240				350
"	16	51	J	-	110	3	0	6							
"	16	47	J	-	0	3	0	13							
"	16	50	J	-	3	2	6	1							

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-17-52	35	557	A	F	51	17	43	10				26				19
"	24	185	A	M	4		0									
"	24	201	A	F	2800	280	810									
"	17	53	J	-	3600	360	810	4100								
"	15	47	J	-	1200	290	330	2600								
"	23	191	J	F	4400	150	1900	3800								
"	23	191	J	F	30	2		3								
4-15-53	23	240	A	M	260	49	163	390				120				
"	23	182	A	F	14	3	14	17				23				
5-6-53	24	212	A	F	2500	120	490	1200								
"	24	221	A	M	3000	130	580	1200								
"	24	223	A	F	5800	210	700	1900								
"	24	226	A	M	1900	200	370	1200								
"	24	207	A	-	3600	120	370	950								
"	19	109	J	F	10000	420	1000	3600								
"	18	73	J	-	6900	270	510	2800								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-6-53	20.0	116	J	-	100	46	130	440								
"	18	78	J	-	82	5	14	34								
"	18	77	J	-	170	3	7	17								
"	18	78	J	-	8200	320	850	2800								
5-19-53	25	240	A	F	1300	45	400	750								
"	23	167	A	F	2100	150	940	1800								
"	26.0	318	A	F	34	4	14	27								
"	27	291	A	M	6	2	2	0								
"	19	97	J	F	1500	130	360	1200								
"	16	84	J	-	200	17	36	169								
"	19	94	J	F	1800	120	220	1200								
"	20	124	J	M	94	9	15	78								
"	18	92	J	M	4000	360	990	2900								
6-30-53	29	388	A	F	0	5	0	26								
"	32	430	A	F	0	1	2	9								
"	29	377	A	F	0	5	3	7								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
6-30-53	25	252	A	F	0	4	7	0								
"	26	274	A	F	120	11	15	120								
"	25	212	A	M	2	2	1	2			3	6	6			
"	25	249	A	F	0	4	5	3								
"	29	370	A	F	130	23	58	130								
"	20	112	J	F	0	0	0	20								
7-15-53	28	357	A	F	1	4	2	4								
"	30	443	A	F	0	3	4	2								
"	29	397	A	M	1	2	2	4								
"	26	225	A	M	0	5	6	4								
8-4-53	25	273	A	F	4	2	4	0								
"	25	332	A	F	4		18	0								
"	32	494	A	F	2	6	4	5								
"	30	374	A	F	24	6	11	20								
"	27	281	A	M	0	4	5	0								
"	29	333	A	M	0	3	2	0								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} μ c/g Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
8-4-53	30	401	A	F	6	5	2	8							
"	34	536	A	F	1	5	53	18							
"	29	380	A	M	1	4	2	0							
"	28	300	A	F	1	3	3	0							
8-17-53	28	313	A	M	4	0	9	45							
"	26	282	A	F	0	3	4	15							
"	24	178	A	F	180	17	120	74							
8-31-53	25	225	A	F	7	3	2	2							
"	25	244	A	M	5	5	2	2							
"	29	390	A	F	2	2	4	3							
"	27	316	A	F	96	6	37	42							
"	29	256	A	F	9	2	3	3							
"	25	234	A	F	6	4	2	6							
"	31	442	A	M	4	3		1							
"	32	490	A	F	53	5	10	7							
"	27	348	A	F	6	3	2	1							

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
8-31-53	24	208	A	M	3	15	3	3								
"	25	214	A	M	0	2	0	1								
"	20	110	J	F	5	4	3	8								
"	20	125	J	F	19	4	2	5								
"	20	122	J	M	650	31	34	300								
"	20	121	J	M	7	2	7	4								
"	20	109	J	M	620	54	31	510								
9-14-53	29	326	A	F	280	26	280	120								
"	33	481	A	M	0	2	3	5								
"	31	430	A	M	3	0	18	1								
"	25	250	A	M	1	9	19	1								
"	28	353	A	M	7	5	11	0								
"	25	259	A	F	25	6	9	19								
"	29	371	A	M	2	1	2	0								
"	30	370	A	M	4	2	3	0								
"	29	424	A	M	0	2	2	0								
"	27	325	A	M	1	1	1	2								

Station 391-396 (Priest Rapids) continued

Concentration in Units of 10^{-6} μ c/g Wet Weight																
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
9-14-53	27	325	A	F	2	3	4	4	4							
"	22	161	J	M	2	11	1	2								
"	23	118	J	-	11	2	0	0								
10-6-53	27	328	A	M	8	6	5	10		6						
10-21-53	36	914	A	F	2	4	3	74								
10-26-53	25	259	A	F	610	63	340	190								
"	25	202	A	F	870	210	800	360								
"	24	215	A	M	19	8	1	3								
"	25	220	A	M	640	90	460	510								
11-3-53	32	561	A	F	18	26	7	0								
"	29	446	A	M	25	6	5	3								
"	32	490	A	F	290	56	260	370								
"	29	400	A	M	9	1	230	4								
"	29	377	A	F	490	63	3	280								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight									
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin
11-3-53	25	230	A	F	680	56	410	350						
"	22	168	J	M	0	2	5	18						
"	23	160	J	M	160	9	16	100						
11-17-53	28	319	A	F	110	17	490	78						
"	27	287	A	F	100	110	450	87						
"	27	333	A	F	93	33	65	51						
"	29	327	A	M	950	180	970	610						
"	30	441	A	F	0	1	35	6						
"	30	447	A	F	140	32	21	85						
"	29	341	A	F	450	74	620	230						
"	28	314	A	F	200	32	170	87						
"	31	455	A	F	210	30	180	120						
"	27	318	A	F	2	2	11	8						
"	22	184	J	F	3	2	2	3						
12-1-53	29	332	A	M	14		0	4						
"	28	362	A	F	980	180	840	480						

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight								Spleen	Skin	Feces
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart			
12-1-53	23	189	A	M	44	5	4	8							
12-18-53	31.0	427	A	F	66	76	550	220							
"	31.0	538	A	F	8	3	4	0							
"	34.0	582	A	M	170	54	270	110							
"	28	305	A	M	120	9	81	49							
"	41	1134	A	F	340	62	350	250							
"	37	917	A	F	520	110	730	480							
"	26	262	A	F	220	20	80	150							
"	26	274	A	F	1100	91	400	650							
"	33	545	A	F	720	110	450	460							
"	29	299	A	M	400	69	300	150							
"	32	506	A	F	780	92	570	420							
"	26	272	A	M	300	72	330	140							
"	39	1280	A	F	7	4	3	0							
"	31	342	A	F	600	78	460	340							
"	29	349	A	M	8	0	3	5							
"	31	330	A	F	13	3	2	0							

Station 391-396 (Priest Rapids)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
12-18-53	23	198	A	M	30	3	63	10																	
"	38	840	A	F	130	13	110	54																	
"	44	1355	A	F	12	4	5	6																	
"	32	497	A	F	7	2	5	1																	
"	28	388	A	F	92	8	35	18																	
"	36	686	A	F	1100	140	1000	910																	
"	31	450	A	F	41	5	6	3																	
"	27	298	A	F	1200	98	770	680																	
"	28	342	A	F	490	91	480	390																	
"	36	797	A	F	560	73	470	390																	
"	40.0	908	A	F	600	94	510	390																	
"	27	275	A	M	270	83	460	270																	
"	25	251	A	F	860	44	430	730																	
"	28	320	A	F	160	17	120	120																	
"	24	180	A	M	1960	160	420	2700																	
"	23	172	J	-	15	0	56	0																	
"	23	180	J	M	280	45	240	333																	
"	23	181	J	-	2600	170	640	2400																	

Station 391-396 (Priest Rapids)

				Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight													
				Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin				
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	28	5	78	33									
12-21-53	33.0	498	A	F													
1-5-54	27	306	A	F	2	0	0	10									
"	28	283	A	M	52	4	63	41									
"	24	205	A	F	0	6	2	0									
"	24	219	A	M	7	13	1	4									
1-18-54	27	282	A	M	42	14	3	40									
"	29	318	A	F	3	2	12	0									
2-2-54	24	230	A	F	9	4	1	3									
3-9-54	29	323	A	F	2	27	7										
"	29	320	A	F	270	23	400										
"	29	320	A	F	14	11	7										
"	27	247	A	M	13	13	13										
"	24	216	A	F	11	28	9										
"	24	189	A	F	410	59	600										

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight									
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin
3-9-54	27	268	A	M	5	16	7							
"	25	211	A	F	8	12	8							
"	16	46	J	-	700	85	200	500						
"	19	86	J	F	1200	100	200	900						
"	18	75	J	M	80	37	16	99						
"	16	52	J	F	800	100	200	600						
"	19	91	J	F	300	53	57	300						
"	23	152	J	F	10	37	9							
"	23	154	J	F	1300	131	800							
"	23	161	J	M	200	23	66							
"	24	182	J	F	1200	71	400							
"	23	168	J	F	6	65	5							
"	24	178	J	M	8	65	14							
"	22	149	J	M	13	12	13							
"	24	188	J	F	11	13	11							
"	24	177	J	M	9	12	5							
"	24	186	J	F	10	15	3							
"	24	172	J	M	100	62	86							

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10 ⁻⁶ µc/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-9-54	25	182	J	F	1300	100	700									
"	24	195	J	M	5	8	13									
"	23	154	J	F	300	46	100									
"	23	176	J	M	14	24	5									
4-5-54	25	215	A	F	12	5	3	16								
"	25	203	A	M	2	4	0	0								
"	25	240	A	M	2	3	3	0								
"	18	81	J	M	1	3	2	23								
"	18	88	J	F	7	4	13	25								
"	17	55	J	-	10	3	4	3								
"	18	70	J	-	0	2	5	270								
"	17	60	J	-	27	3	5	0								
"	16	60	J	F	6	2	8	19								
"	23	170	J	F	8	0	4	7								
"	23	164	J	M	7	4	5	10								
"	23	172	J	M	280	14	270	270								
"	23	158	J	M	0	3	3	10								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
4-5-54	24	180	J	F	3	4	3	16								
"	23	186	J	F	290	30	53	210								
"	24	195	J	F	69	1	3	2								
5-4-54	33	448	A	M	30	5	35	33								
"	27	260	A	F	45	5	41	25								
"	25	199	A	F	8	5	0	0								
"	24	201	A	F	1600	85	980	1100								
"	24	184	A	F	8	4	7	0								
"	24	206	A	F	7	3	4	6								
"	24	170	A	M	6	3	1	0								
"	30	156	A	F	150	74	600	1500								
"	24	172	A	F	350	26	200	260								
"	23	144	A	F	380	20	330	270								
"	23	157	A	F	1000	71	330	860								
"	23	160	A	M	1200	110	840	1300								
"	22	139	J	F	900	48	460	800								
"	21	96	J	M	1100	120	480	1900								

Station 391-396 (Priest Rapids)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-4-54	18	70	J	F	13	3	0	32								
"	18	70	J	-	80	10	8	200								
"	17	57	J	-	5	5	8	6								
5-19-54	27	215	A	F	40	11	19	13								
"	33	350	A	F	1	3	4	0								
"	28	255	A	F	0	4	2	7								
"	24	1700	A	M	0	4	4	0								
"	29	295	A	F	1	1	3	0								
"	27	289	A	F	1	4	3	59								
"	24	180	A	F	57	7	16	60								
"	23	144	A	F	200	19	37	170								
"	19	82	J	F	2	2	3	12								
"	19	80	J	M	2800	200	700	3200								
"	18	75	J	F	7	5	5	0								
"	18	65	J	F	1200	100	220	1600								
"	19	67	J	F	1000	67	250	740								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
7-7-54	32	408	A	F	24	5	9	0								
"	30	378	A	F	5	5	3	0								
"	30	363	A	F	8	6	-	13								
"	26	147	A	F	1	15	4	14								
"	28	294	A	F	1	3	3	13								
"	26	251	A	F	1	4	2	0								
"	29	299	A	F	25	5	11	37								
"	26	240	A	M	1	4	5	8								
"	25	206	A	F	15	5	4	16								
"	24	199	A	M	3	3	3	0								
"	24	191	A	F	3	4	5	2								
"	26	221	A	F	6	5	3	0								
"	26	240	A	F	6	4	3	26								
"	30	168	A	F	1	4	3	7								
"	25	203	A	F	170	14	26	160								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
8-17-54	31	345	A	F	0	5	4	8							
"	25	199	A	F	7	3	4	0							
"	27	282	A	F	0	3	7	0							
"	24	180	A	M	6	5	5	48							
"	28	289	A	F	1	3	2	10							
"	24	171	A	M	4	2	7	4							
"	25	241	A	F	0	4	1	1							
"	23	157	A	M	5	5	6	7							
9-7-54	32	315	A	F	72	10	114	35							
"	27	308	A	F	4	2	8	18							
"	26	230	A	M	1	3	1	10							
"	24	172	A	F	2	4	5	0							
"	22	144	J	-	0	3	4	20							
10-4-54	27	259	A	M	11	3	2	0							

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight																			
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces									
10-26-54	25	137	A	F	1600	180	1700	600																
"	25	254	A	F	9	6	280	0																
"	23	180	A	F	39	3	1	0																
"	24	231	A	F	8		4	0																
"	24	232	A	F	66	2	7	3																
"	24	210	A	F	20	5	5	0																
"	24	171	A	M	5100	400	2100	4500																
"	25	322	A	F	670	44	510	330																
"	28	311	A	M	290	31	150	160																
"	27	287	A	F	200	34	390	38																
"	25	242	A	F	9	5	12	9																
"	26	235	A	M	10	4	3	2																
"	27	253	A	M	13	5	5	0																
"	27	254	A	F	360	55	260	100																
"	24	217	A	F	2500	390	2200	1100																
"	24	187	A	F	3700	310	3600																	
"	24	176	A	M	2800	270	2300																	
"	22	152	J	M	13000	650	3000	8400																

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} μ c/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-26-54	22	132	J	-	16000	970	4000	15000								
"	22	135	J	-	5000	400	1800	4800								
11-22-54	31	470	A	M	900	72	900	700								
"	26	218	A	M	87	18	19	45								
"	24	197	A	F	2000	310	2800	1000								
"	24	197	A	M	3400	12	280	3000								
"	23	176	A	M	1200	150	420	820								
"	25	133	A	F	200	37	110	310								
"	25	276	A	M	2000	230	1400	1500								
"	28	359	A	M	5	4	3	0								
"	27	347	A	M	87	17	100	0								
"	31	382	A	F	110	19	230	12								
"	33	652	A	F	240	53	280	170								
12-1-54	29		A	F	540	98	410	160								
"	34		A	F	240	57	430	150								
"	26		A	F	2400	270	2000	1400								

Station 391-396 (Priest Rapids) continued

			Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight														
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales		Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-1-54	29		A	F	380			600	200								
"	25		A	F	130	25		110	41								
"	34		A	F	4	3		4	820								
"	26		A	M	44	2		6	0								
"	24		A	M	400	44		120	240								
"	26		A	M	2800	260		1700	790								
"	30		A	M	1100	140		620	440								
"	27	236	A	F	930	410		1200									
"	23		A	M	2900	140		1900	2100								
"	25		A	F		62		190	330								
"	25		A	F	3800	290		1900	1900								
"	25	211	A	F	1900	190		1100	910								
"	23		A	F	2100	140			610								
"	24	126	A	M	4300	490		1800	2700								

Station 391-396 (Priest Rapids)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
1-4-55	23	187	A	M	150	10	40	13								
"	27	282	A	F	29	4	27	15								
"	27	249	A	F	43	8	8	58								
"	30	231	A	M	4	5	5	0								
"	27	256	A	M	4	4	11	16								
2-8-55	16	48	J	M	6	1	9	0								
3-8-55	220	181	J	M	11	3	7	7								
4-4-55	26	234	A	F	6	1	5	15								
"	26	237	A	F	0	4	5	0								
"	24	178	A	M	1	4	2	0								
"	24	173	A	F	89	10	37	5								
"	23	163	A	F	590		260	360								
"	23	161	J	F	31	2	0	0								
"	23	152	J	F	1300	56	340	620								
"	23	146	J	F	0	4	4	15								

Station 391-396 (Priest Rapids) continued

				Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
4-4-55	17	47	J	-	1	2	0	29							
5-10-55	25	192.3	A	F	690	39	350	440							
"	26	206.5	A	M	33	3	4	2							
"	22	147.7	J	M	2400	92	980	800							
"	17	47.1	J	F	2400	150	450	1900							
6-20-55	26	244.5	A	F	0		3	16							
10-12-55	32	405.0	A	F	710	54	550	190							
"	26	263.4	A	F	830	120	740	250							
"	28	305.5	A	F	12	3	3	0							
"	25	222.2	A	F	2200	180	1300	530							
"	26	244.4	A	F	400	360	3400	750							
"	24	189.3	A	F	5700	680	3000	2900							
"	24	208.5	A	F	2700	310	1500	2100							
"	25	210.5	A	F	3200	390	2700	2800							
"	25	232.8	A	M	340	410	860	4300							

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight									
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin
10-12-55	25	235.7	A	F	48	6	6	0						
"	25	214.2	A	F	680	42	730	340						
"	12	27.6	J	F	130	5		52						
11-7-55	25	275	A	F	61	7	6	120						
"	26	306	A	F	69	16	4	43						
"	26	299	A	F	7	5	5	46						
"	25	242	A	M	19	5	31	40						
"	31	376	A	F	110	89	4	34						
"	25	232	A	F	3700	160	1900	2100						
"	23	209	A	F	3300	260	1800	1800						
"	26	237	A	F	51	7	14	0						
"	21	153	J	F	5500	330	1900	3700						
"	13	35	J	-	11000	490	520	5400						

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-5-55	30	343	A	F	0	3	1	9								
"	28	354	A		0	2	0	0								
"	29	293	A	F	10	4	4	12								
"	28	325	A	F	950	180	860	170								
"	24	223	A	F	930	13	53	54								
"	24	171	A	M	2800	150	250	220								
"	23	157	A	F	280	340	940	540								
"	21	134	J	F	4100	230	640	330								
"	22	146	J	M	6100	350	1200	4300								
"	20	105	J	M	5600	390	1300	2800								
"	22	142	J	F	53	3	16	25								
"	21	133	J	-	0	2	3	0								
"	22	124	J	-	0	1	7	4								
"	20	122	J	F	40	3	10	24								
1-10-56	26	261	A	F	13	5	7	2								
"	27	267	A	M	4	5	2	10								

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-19-56	25	212	A	M	7	5	7	6								
"	25	212	A	F	390	36	430	200								
"	23	191	A	F	0	7	5	26								
"	27	215	A	F	20	5	3	0								
"	25	216	A	M	16	5	4	0								
"	25	212	A	M	13	4	2	7.5								
"	25	192	A	F	5	4	2	0								
"	25	204	A	F	28	4	6	0								
"	23	158	A	M	26	5	6	6								
"	23	169	A	M	140	0	73	42								
"	23	147	A	M	20	6	8	27								
"	23	158	A	M	210	9	140	79								
"	21	131	J	M	4	6	1	26								
"	22	130	J	M	7	4	11	22								
"	21	143	J	F	390	43	270	320								
4-2-56	33	462	A	F	0	0	0	0								
"	28	256	A	F	68	5	49	42								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
4-2-56	28	257	A	F	1	4	3	10								
"	26	229	A	M	0	5	7	0								
"	26	213	A	M	8	5	3	0								
"	25	189	A	M	0	4	4	4								
"	22	152	J	M	0	7	7	0								
"	22	140	J	M	20	8	15	29								
"	21	137	J	F	210	13	120	170								
"	22	127	J	F	0	6	0	59								
"	21	128	J	F	740	46	410	530								
"	21	119	J	F	610	41	400	390								
"	22	142	J	F	210	13	88	190								
"	21	122	J	F	25	8	12	55								
"	21	119	J	M	14	6	9	30								
5-2-56	27	268	A	F	2	7	5	9								
"	26	235	A	F	14	7	5	11								
"	25	175	A	M	15	6	7	0								
"	25	186	A	M	2	6	11	0								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-2-56	22	144	A	F	0	7	7	4								
"	15	38	J	-	0	5	12	7								
"	14	31	J	-	10	8	13	9								
"	14	29	J	-	14	4	7	8								
6-4-56	32	371	A	M	11	4	0	2								
"	29	275	A	F	6	6	0	2								
"	20	340	A	F	3	4	0	0								
"	27	227	A	M	0	4	2	0								
"	28	269	A	F	4	7	4	0								
"	31	356	A	F	0	4	3	53								
"	27	255	A	M	31	14	29	97								
"	32	338	A	F	4	2	1	0								
"	26	219	A	F	41	8	29	17								
"	28	231	A	F	4	4	4	0								
"	27	234	A	F	3	3	0	-								
"	24	177	A	F	0	4	2	0								
"	28	273	A	M	4	4	1	6								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
6-4-56	31	395	A	F	0	4	0	24								
7-2-56	52	505	A	F	27	4	5	0								
"	32	344	A	F	0	6	4	0								
"	30	306	A	F	4	3	4	10								
"	29	293	A	F	0	3	8	19								
"	28	270	A	F	8	3	3	0								
"	27	274	A	F	19	5	2	14								
"	28	259	A	F	0	8	6	19								
"	27	242	A	F	0	8	5	7								
"	26	236	A	F	2	4	4	0								
"	27	229	A	F	11	5	4	4								
"	27	230	A	M	0	5	4	0								
"	26	216	A	F	7	6	15	0								
"	25	216	A	M	67	7	8	13								
"	26	286	A	F	0	5	4	28								
"	25	182	A	F	0	3	4	8								
"	22	141	J	F	17	4	5	0								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
7-2-56	22	130	J	F	9	5	8	0								
"	21	119	J	F	26	6	5	0								
"	21	118	J	F	55	9	9	63								
"	20	92	J	-	19	10	9	29								
8-1-56	31	399	A	F	5	4	10	0								
"	29	302	A	F	1	3	3	9								
"	31	314	A	M	13	7	4	14								
"	27	249	A	F	0	5	5	0								
"	26	210	A	F	0	5	5	0								
9-4-56	28	260	A	F	89	11	96	130								
"	19	92	J	-	81	41	71	230								
"	19	85	J	-	110	6	14	180								
"	18	70	J	-	120	5	77	340								
"	18	80	J	F	89	4	18	190								

Station 391-396 (Priest Rapids) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-9-56	30	350	A	F	60	17	17	37								
"	30	442	A	F	50	17	8	0								
"	21	285	J	M	120	32	8	6								
"	21	235	J	F	370	19	260	14								
"	11	105	J	M	19	4	3	7								
"	11	95	J	M	27	5	4	0								
11-5-56	30	284	A	F	310	44	230	74								
"	26	192	A	M	610	82	350	220								
"	27	187	A	F	160	32	110	66								
"	24	167	A	F	0	4	7	32								
"	24	141	A	M	1800	180	520	500								
"	22	141	J	M	740	120	3900	5100								
12-4-56	30	325	A	F	2500	320	1600	190								
"	20	492	A	M	440	44	120	290								

Station 367 (F-1)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10 ⁻⁶ µc/g Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
7-16-52	26	276	A	F	750	94	650	710	320		440				2100
12-22-52	38	792	A	F	480	130	830	400			630				2300
"	24	183	A	F	2900	360	1200	2400							940
"	29	312	A	F	650	160	980	780							
"	29	332	A	F		50	550	200							
"	31	388	A	F	500	110	770	390							
"	33	471	A	F	310	120	600	500							
5-13-53	25	232	A	F	1200	80	780	1100							
"	31	386	A	M	1400	120	910	1400							
"	27	266	A	M	1300	280	1400	1400	1000						
"	29	387	A	F		140	680	1800							
7-7-53	39	729	A	F	29	5	32	26	5		33	14	21	12	
"	32	429	A	F	47	11	46	39	35		40	18	20	19	
11-25-53	41	1235	A	F	110	17	150	65							

Station 367 (F-1)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces		
11-25-53	42	772	A	F	230	48	670	170									
"	42	877	A	F	84	30	280	69									
"	30	380	A	F	1800	300	2200	630									
"	24	190	A		9100	570	3000	3900									
"	27	316	A	M	920	86	1300	390									
"	26	295	A	F	4000	270	3300	2600									
"	27	329	A	M	3100	480	2200	1700									
"	27	316	A	F	2000	260	2200	1400									
"	24	190	J	F	11000	660	4200	7000									
1-11-54	43	957	A	M	43		970	22									
"	27	273	A	F	1400		840	1200									
"	38	593	A	F	200		330	121									
"	32	419	A	F	870	330	1100	864									
"	42	929	A	F	280		69	250									
"	30	322	A	F	660	140	1103	490									
"	30	313	A	F	370	130	730	240									
"	29	306	A	M	770	200	1200	560									

Station 367 (F-1) continued

Date			Standard Length in Centimeters		Weight in Grams		Age		Sex		Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
											Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
1-11-54	43	1029	A	F		220	38	270	110												
"	22	147	J	F		11000	1000	4300	10000												
"	24	171	J	-		30	350	2500	2300												
"	23	176	J	F			1300	4000	6400												
"	24	183	J	F			290	920	1500												
"	23	171	J	F		8700	1100	4200	5000												
2-10-54	40	849	A	M		79	41	260	71								140				
"	32	482	A	F		620	78	920	760								460				
"	31	346	A	F		340	34	810	430												
"	29	275	A	F		580	63	1500	460												
"	41	1021	A	F		140	41	160	61												
3-4-54	33	380	A	M		850	100	1800	730												
"	30	354	A	F		170	36	320	33												
"	30	366	A	M		480	94	630	390												
"	30	309	A	F		470	48	540	160												
"	28	262	A	F		320	39	470	220												

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-4-54	29	348	A	M	420	57	940	240								
"	32	415	A	F	120	27	180	91								
"	27	255	A	F	280	30	320	65								
"	24	198	A	F	1700	170	1300	690								
"	23	153	J	F	1500	94	750	1500								
3-16-54	42	897	A	F	51	3		58							31	
"	35	458	A	F	160	66		170							76	
"	27	285	A	M	240	75		690							225	
"	28	280	A	M	490	84		850							209	
"	25	216	A	F	1300	224		910							228	
"	29	285	A	F	1100	340		810							235	
"	29	280	A	F	220	19		54							65	
"	29	308	A	F	770	140		1100							206	
"	26	230	A	F	830	94		530							110	
"	30	274	A	F	600	280		280							110	
"	29	305	A	F	1600	430		1500							190	
"	29	303	A	F	650	230		450								

Station 367 (F-1) Continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight													
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces			
3-16-54	27	255	A	F	240	15		130										
"	31	247	A	M	750	100		680										
"	29	312	A	M	850	180		480										
"	31	390	A	M	420	54		250										
"	35	596	A	F	280	69		190										
"	36	610	A	F	89	61		55										
"	45	896	A	F	41	9		0										
"	32	396	A	F	320	41		270										
"	22	146	J	F	1200	85		270								84		
"	24	185	J	F	2600	67										150		
"	23	159	J	M	2200	160										180		
3-31-54	26	213	A	F	170	81												
"	29	270	A	F	810	86		190										
"	27	269	A	F	540	47		320										
"	29	376	A	M	300	34		270										
"	30	406	A	F	570	52		660										
"	33	548	A	F	170	34		270										

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-31-54	29	386	A	M	220	54	410	220								
"	30	329	A	F	470	45	370	240								
"	35	699	A	M	133	31	201	770								
"	18	65	J	F	3300	130	960	140								
"	19	75	J	F	3300	390	1700	2700								
"	24	167	J	F	1400	63	1400	680								
"	24	182	J	F	1400	90	960	940								
"	25	202	J	F	2000	180	1500	1600								
"	25	183	J	F	2000	140	2000	1600								
4-20-54	35	496	A	F	110	17	110	130								
"	24	181	A	F	1700	110	1100	1100								
8-12-54	24	167	A	M	1700	68	1500	130								
"	23	143	A	M	280	11	180	630								
"	19	86	J	M	3100	130	820	460								
9-8-54	35	445	A	M	1700	490	2600	380								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10 ⁻⁶ µc/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
9-8-54	28	308	A	F	1200	88	1000	180								
"	28	292	A	F	1100	88	1200	970								
"	24	227	A	M	3200	190	1400	520								
"	23	197	A	F	3500	210	2800	570								
"	27	246	A	M	2200	180	2000	720								
"	25	214	A	F	3000	190	2900	1700								
"	25	208	A	M	3000	180	3200	2900								
"	24	168	J	M	4200	290	2600	2600								
"	20	102	J	F	20000	1000	5200	11000								
"	19	89	J	-	27000	1500	7300	23000								
10-5-54	29	281	A	F	1700	250	3500	1100								
"	28	312	A	F	1900	190	3200	1000								
"	27	252	A	F	4100	430	4500	1400								
"	24	209	A	F	4400	530	4200	4100								
"	23	194	A	M	3300	210	2400	1800								
"	23	174	A	M	4900	430	1900	4800								
"	24	174	A	M	2600	250	1900	1000								

Station 367 (F-1) continued

Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight																
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-20-54	38	638	A	F	650	560	550	220								
"	32	507	A	F	2200	290	3300	1600								
"	31	392	A	F	950	150	2400	350								
"	27	329	A	F	2200	290	2700	1000								
"	29	324	A	F	2900	250	3000	1100								
"	29	310	A	M	1700	330	2700	1200								
"	28	337	A	F	2400	230	3500	850								
"	25	238	A	F	4400	360	3500	3800								
"	25	231	A	F	3700	480	3600	3300								
"	24	202	A	F	7400	260	7000	5700								
"	24	191	A	F	8300	610	3700	7000								
"	24	170	A	M	4900	2200	4000	4200								
"	20	107	J	F	25000	1600	6000	21000								
11-16-54	26	225	A	M	8300	550	5600	4200								
"	23	171	A	F	5100	370	2200	4800								
"	27	217	A	M	9700	590	4900	5800								
"	25	245	A	F	4300	380	3300	2600								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
11-16-54	25	233	A	F	2400	280	2500	1400								
"	25	227	A	F	6700	390	3200	4000								
"	26	284	A	F	2700	220	2700	2000								
"	29	242	A	F	1900	301	3300	480								
"	30	247	A	M	2300	400	2400	1900								
"	30	221	A	M	1700	1200	420	920								
"	21	109	J	-	20000	1300	5200	17000								
"	22	121	J	-	19000	860	4900	15000								
"	23	143	J	F	10000	650	2400	9700								
"	23	172	J	F	9200	340	1300	5300								
"	22	142	J	M	18000	1200	6400	17000								
12-2-54	34	450	A	F	160	76	940	370								
"	34	566	A	F	1200	180	1400	1100								
"	27	287	A	F	790	76	810	530								
"	22	142	J	M	4300	490	2300	3600								
"	13	30	J	-	18000	1200	4600	15000								
"	20	107	J	-	7100	670	2600	10000								

Station 367 (F-1) Continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-2-54	21	113	J	F	7700	560	1600	10000								
"	21	142	J	F	9400	750	3100	10000								
"	21	136	J	F	1500	69	930	2700								
"	22	156	J	F	4800	310	1700	5000								
1-11-55	35	541	A	F	1300	154	920	760								
"	32	407	A	F	700	130	700	470								
"	30	354	A	F	430	98	670	200								
"	30	299	A	F	1100	140	990	870								
"	30	325	A	M	1000	120	1400	360								
"	29	307	A	M	450	44	540	200								
"	27	241	A	M	1000	160	1300	370								
"	25	221	A	F	2200	240	1648	1500								
"	24	184	A	-	1200	92	820	550								
"	26	206	A	F	2600	180	1900	1300								
"	26	193	A	M	2100	190	2200	540								
"	25	191	A	F	1500	120	1800	640								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
1-13-55	45	965	A	M	18	12	37	0								
2-1-55	42	894	A	F	340	15	97	48								
"	39	695	A	F	44	37	560	170								
"	37	657	A	F	250	47	570	260								
"	29	302	A	M	200	52	430	160								
"	43	1071	A	F	87	29	190	4								
"	41	913	A	F	72	30	112	59								
"	40	876	A	F	360	64	210	3400								
"	36	627	A	F	210	22	270	190								
"	31	280	A	F	190	19	280	18								
3-15-55	23	157	A	F	4100	140	1900	1700								
"	30	251	A	F	4200	180	560	320								
"	27	239	A	F	360	33	460	120								
"	27	262	A	F	500	38	310	170								
"	30	309	A	F	77	38	130	15								
"	29	351	A	F	130	16	150	0								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-15-55	30	336	A	F	770	72	880	94								
"	30	471	A	F	110	12	140	46								
"	31	441	A	F	67	24	180	34								
4-12-55	31	388	A	M	310	46	860	250								
"	23	156	A	F	1200	71	710	1000								
5-3-55	34	474	A	F	65	19	59	35								
"	27	248	A	F	590	58	750	230								
"	26	243	A	M	1700	66	1400	470								
"	24	201	A	M	1700		910	580								
"	22	152	J	M	4100	99	1200	1200								
"	16	59	J	-	4000	370	1100	3400								
8-16-55	29	402	A	M	330	41	680	550								
"	30	351	A	F	820	53	1700	190								
"	29	324	A	F	710	53	1300	330								
"	30	318	A	F	640	54	960	290								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
8-16-55	28	314	A	M	1200	49	840	450								
"	27	355	A	F	730	46	830	270								
"	24	184	A	F	2800	130	2200	1200								
"	26	263	A	F	1700	60	1300	760								
10-10-55	39	587	A	F	1200	190	2800	430								
"	30	371	A	F	1500	210	1100	550								
"	29	368	A	F	3200	520	890	440								
"	27	293	A	F	3900	320	1200	2000								
"	27	275	A	F	2000	240	3400	940								
"	26	254	A	F	2900	330	4100	1700								
"	26	249	A	M	5700	460	3000	1900								
"	27	249	A	M	5500	400	2300	2500								
"	27	246	A	F	3200	360	3900	890								
"	26	253	A	F	4600	530	5100	2200								
11-2-55	31	417	A	F	1300	160	1800	730								
"	31	380	A	M	780	170	1300	330								

Station 367 (F-1) continued				Concentration in Units of 10 ⁻⁶ µc/g Wet Weight											
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
11-2-55	27	291	A	F	2600	290	2300	1000							
"	25	359	A	F	4300	400	4700	1100							
"	25	251	A	F	8200	950	5800	4700							
"	24	183	A	F	6400	440	2700	3000							
"	20	109	J	F	15000	1200	2800	12000							
"	18	83	J	F	20000	860	2500	6800							
11-9-55	24	201	A	F	4200	470	2400	4900							
11-28-55	27	226	A	F	980	120	720	260							
"	22	142	J	F	4900	420	1900	3900							
"	21	141	J	M	6400	550	2000	8800							
"	21	140	J	M	7900	560	1700	7500							
"	22	148	J	-	5600	470	2000	6600							
"	21	144	J	M	3100	340	2700	2500							
"	20	116	J	F	7800	500	1300	7700							
"	20	113	J	F	8300	630	1800	8100							
"	21	125	J	F	5400	300	2100	6300							

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
11-28-55	19	103	J	-	9300	620	1400	8100								
"	20	104	J	F	7700	450	2400	7700								
1-3-56	28	267	A	M	330	70	480	200								
"	34	581	A	F	860	150	870	820								
"	34	496	A	F	310	72	610	210								
"	28	275	A	M	290	68	730	140								
"	25	200	A	F	750	100	590	680								
"	21	122	J	F	4700	390	1300	4100								
1-16-56	34	454	A	F	250	59	370	130								
"																
2-7-56	43	923	A	F	140	34	220	47								
"	36	638	A	F	170	27	260	62								
"	35	484	A	F	50	8	55	20								
"	32	393	A	M	94	17	81	72								
"	32	365	A	F	430	80	490	260								
"	27	240	A	F	800	44	900	370								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
2-7-56	24	135	A	F	1800	150	1500	390								
2-14-56	41	748	A	F	55	18	49	46								
"	30	392	A	M	60	18	110	120								
"	32	310	A	F	69	17	67	36								
"	26	228	A	F	930	84	480	630								
"	27	229	A	F	370	40	210	240								
3-13-56	39	736	A	F	120	22	250	110								
"	29	354	A	F	170	26	170	130								
"	26	113	A	F	130	17	62	120								
"	25	198	A	F	330	27	380	380								
"	24	177	A	F	390	22	450	210								
"	24	185	A	F	340	38	310	140								
"	23	152	A	F	220	12	230	bkg.								
"	22	143	A	F	470	33	260	270								
"	22	134	J	-	740	29	360	550								
"	21	133	J	M	140	35	310	250								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces		
3-26-56	28	269	A	M	1000	37	1700	360									
"	24	175	A	M	1300	160	2500	-									
"	27	232	A	F	880	130	1800	410									
"	26	216	A	F	990	64	-	570									
"	31	302	A	M	630	130	1600	180									
"	28	258	A	M	590	110	1500	300									
"	26	194	A	F	300	30	280	110									
"	24	173	A	M	1500	120	250	670									
"	25	170	A	F	680	78	380	400									
"	23	155	A	M	560	30	310	300									
"	19	85	J	F	330	21	360	300									
3-27-56	36	509	A	F	68	12	83	50									
"	29	324	A	F	130	170	580	81									
"	29	303	A	F	810	77	2300	310									
"	24	187	A	F	750	39	930	260									
"	25	192	A	F	370	31	600	280									
"	24	175	A	M	1400	82	1500	650									

Station 367 (F-1) continued

Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight															
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
4-9-56	39	810	A	F	230	29	370	250							
"	33	419	A	F	74	12	77	57							
"	31	426	A	M	210	24	260	130							
"	30	371	A	F	110	28	320	110							
"	27	239	A	F	260	22	28	130							
"	25	204	A	M	380	24	390	25							
"	25	188	A	F	430	50	550	50							
"	22	152	A	M	370	36	390	75							
"	22	148	J	M	700	36	680	700							
"	21	124	J	-	800	36	460	580							
5-7-56	36	583	A	F	180	18	130	1200							
"	34	474	A	F	67	6	28	120							
"	34	476	A	F	74	14	120	43							
"	28	276	A	M	58	14	97	21							
"	25	184	A	M	680	21	280	230							
"	24	189	A	M	540	43	330	250							
"	24	162	A	M	480	24	350	120							

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-7-56	24	166	A	M	460	33	300	130								
"	16	48	J	-	1600	110	440	1500								
"	15	43	J	-	4600	300	990	2500								
5-14-56	26	187	A	M	260	29	290	130								
6-6-56	30	384	A	M	47	11	23	29								
"	25	214	A	F	260	35	160	150								
"	24	259	A	M	930	31	48	780								
"	21	109	J	F	890	51	300	260								
"	16	56	J	M	1700	73	340	1100								
"	16	49	J	M	1100	88	180	1100								
7-9-56	36	657	A	F	100	31	110	97								
"	34	384	A	F	29	11	46	19								
"	33	429	A	F	50	17	56	20								
"	31	350	A	F	58	14	100	72								
"	29	377	A	F	97	13	96	61								

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
7-9-56	28	250	A	M	97	11	110	78							
"	26	206	A	F	240	24	230	160							
"	25	180	A	M	110	25	150	77							
"	24	163	A	M	140	27	180	110							
"	24	174	A	M	110	12	99	67							
"	23	152	J	F	410	36	360	150							
8-6-56	31	346	A	F	540	43	1000	250							
"	29	299	A	F	1300	48	2000	510							
"	27	222	A	F	2600	250	3300	950							
"	26	201	A	F	1500	91	2200	690							
"	25	203	A	F	2000	120	2600	1900							
"	27	198	A	F	3200	230	3500	740							
"	26	175	A	F	800	47	950	600							
"	24	149	A	F	1400	61	1400	400							
"	24	156	A	M	3200	150	3300	1000							
"	22	137	J	M	12000	380	7700	680							
"	23	133	J	M	2900	150	2700	1500							

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight													
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces			
8-6-56	22	122	J	F	3800	170	3400	1300										
10-1-56	25	206	A	F	11000	790	10000	4800										
"	26	246	A	F	9000	520	7300	1800										
"	28	229	A	M	6700	330	4000	1300										
"	25	169	A	F	7700	470	7700	2200										
"	26	179	A	F	11000	1100	9200	2700										
"	26	220	A	M	8500	660	6700	2500										
"	24	181	A	M	8400	670	5700	2400										
"	23	154	A	F	8300	910	8500	2700										
"	20	143	J	-	26000	1900	16000	5400										
11-14-56	33	530	A	F	3600	680	5100	2000										
"	37	513	A	F	4600	1000	6200	3400										
"	29	255	A	F	2600	370	3500	460										
"	29	289	A	F	3000	280	4400	410										
"	33	437	A	F	1400	150	1700	440										
"	26	210	A	F	3700	380	3900	1100										

Station 367 (F-1) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
11-14-56	26	224	A	M	4600	430	3600	1000								
"	25	167	A	M	7600	490	5500	1200								
"	25	178	A	M	10000	670	4600	2900								
"	22	120	A	F	14000	900	3700	8900								
12-3-56	30	305	A	F	1600	180	2300	340								
"	32	422	A	F	1100	260	1300	400								
"	30	320	A	F	2700	460	2100	1100								
"	26	222	A	F	2100	290	2500	880								
"	25	180	A	F	3000	330	3200	580								
"	25	175	A	M	1100	520	3000	1300								
"	24	140	A	F	2900	170	1400	1000								
"	20	137	A	F	8000	650	2900	4900								
"	20	137	J	M	5900	340	2200	2800								
"	21	160	J	F	2400	180	2100	540								
12-28-56	39	572	A	F	690	110	1200	230								
"	41	831	A	F	1400	180	1500	1000								

Station 362 (Hanford)

				Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
11-3-50	27	289	A	F	290	59	250	140	990		172	150			
12-1-50	14	40	J	-	1600	170	560	2600			500				1900
12-15-50	27	253	A	M	2	5	6	1		2	3	4			4
"	27	220	A	M	0	4	1	2		4	1	0			10
"	29	292	A	M	9	5	8	0		35	1				
12-29-50	27	250	A	M	9	10	8	6			8				18
"	27	224	A	M	1	5	0	20			4				
"	26	207	A	F	1	7	11	14	7		9				5
1-26-51	25	193	A	M	31	6	51	38		27	21	37			190
3-2-51	30	330	A	M	13	8	60	33			33	54			130
"	22	165	A	F	220	25	290	330	110						580
"	24	202	A	M	2	3	4	4							
3-23-51	21	144	A	F	140	18	200	180	110		84	100			

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
5-3-51	27	248	A	F	28	8	80	11				37			210
5-18-51	23	247	A	M	4	54	20								
"	23	146	J	F	95	10	120	78				28			
"	21	110	J	F	41	7	23								
"	20	112	J	-	56	0	10								
6-1-51	32	377	A	F	6	4	6	7				2			29
"	14	37	J	-	1500	36	350	620							670
6-22-51	31	372	A	F	20	2	20	11	11			13			25
7-13-51	34	470	A	F	15	4	23	7	16			11			
8-17-51	23	151	J	M	2200	140	660	760				460			
5-9-52	24	258	A	M	640	24	270	470				160			300
12-30-52	39	861	A	F	300	70	480	500				390	210		1900

Station 362 (Hanford) continued

Station 602 (Hamford) continued

				Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
12-30-52	26	272	A	F	700	75	440	640			290				960
"	27	256	A	F	300	58	430	420							1100
"	31	409	A	F	200	63	430	260							
"	27	303	A	F	600	110	590	870							
"	26	333	A	F	220	48	250	230							
"	29	340	A	F	210	48	400	250							
"	24	219	A	F	410	47	300	440							
"	23	181	A	F	340	210	1300	2800							
1-27-53	28	312	A	F	590	83	720	690			370				
"	26	211	A	F	690	110	640	580	290						
"	22	156	J	M	670	62	350	350			200				
10-9-53	31	510	A	F	230	27	400	120	317		190				
11-3-53	360	541	A	F	300	58	770	170			280				
"	440	875	A	F	38	8	50	19	25		32				

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} μ c/g Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
12-1-53	40	1130	A	F	310	88	560	200	120		540				
"	36	573	A	F	550	160	370	290							
"	27	261	A	F	250	36	200	130							
"	31	465	A	F	150	34	130	140							
12-29-53	27	222	A	M	590	72	480	260			220				
2-8-54	29	267	A	M	140	24	200	67			170				
2-16-54	37	578	A	F	120	38	250	95			95				
"	37	573	A	F	230	100	430	170							
"	34	456.5	A	F	270	54	470	230							
3-2-54	28	298	A	M	680	55	1100	410							
"	39	578	A	F	610	69	740	340							
"	32	460	A	F	370	51	700	240							
"	44	1110	A	F	170	41	440	66							
"	30	357	A	F	190	21	330	86							
"	29	240	A	F	1700	150	1700	1300							

Station 362 (Hanford) continued

Concentration in Units of 10 ⁻⁶ µc/g Wet Weight																
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-2-54	26	233	A	M	1300	130	1900	460								
"	24	177	J	F	1600	120	1200	510								
"	23	164	J	F	3300	250	1900	2000								
"	23	154	J	F	2100	160	1500	1400								
"	23	149	J	M	2700	220	1300	1600								
"	22	161	J	F	3300	190	2500	2000								
3-23-54	32	368	A	F	18	8	27	18								
3-29-54	27	246	A	F	390	69	520	200			6					
"	25	201	A	F	320	61	380	170								
"	24	157	J	F	2900	120	1300	2200								
"	23	160	J	F	1500	200	1300	1000								
"	22	151	J	F	1300	75	760	910								
4-21-54	26	351	A	F	510	69	1000	550								
"	37	673	A	F	200	24	340	270								
"	24	177	A	F	72	10	65	64								
"	24	159	J	F	2000	160	1000	1900								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight												
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces		
4-21-54	23	161	J	F	1700	70	1400	1800									
"	23	165	J	F	130	19	150	170									
5-18-54	31	301	A	F	150	25	200	87									
"	33	396	A	M	120	22	120	87									
"	29	394	A	M	110	14	88	110									
6-15-54	26	244	A	M	160	14	240	80									
8-10-54	36	435	A	F	130	11	75	27									
8-12-54	27	270	A	F	220	18	230	150									
"	24	175	A	M	590	36	72	240									
"	29	269	A	F	240	29	500	150									
9-8-54	23	203	A	F	9100	600	9400	3400									
"	18	75	J	F	9000	440	2100	3500									
10-5-54	40	613	A	F	37	33	410	160									

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{C/g}$ Wet Weight									
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin
10-5-54	26	273	A	M	83	66	820	140						
"	24	216	A	F	2500	370	3160	800						
"	25	213	A	F	2000	250	2900	1100						
"	22	125	J	M	27000	1300	5300	16000						
11-15-54	34	494	A	F	5800	440	5400	3300						
"	31	-	A	F	5600	310	3500	3200						
"	27	256	A	M	4600	380	2700	1300						
"	27	245	A	F	3500	160	3000	790						
"	25	240	A	F	8400	630	5400	3500						
"	25	192	A	F	7800	450	5700	5600						
"	25	191	A	F	11000	680	5900	7700						
"	25	190	A	F	7000	550	6300	5400						
"	21	117	J	F	31000	1100	6900	18000						
"	20	96	J	F	11000	510	2900	5700						
12-20-54	25	203	A	F	62	420	2800	5800						
"	28	221	A	F	1200	130	1500	510						

Station 362 (Hanford) continued

Station 302 (Hammock) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
12-20-54	27	230	A	F	910	120	1300	300								
"	34	420	A	F	2200	470	2400	560								
"	29	406	A	F	800	140	1400	340								
"	29	325	A	F	500	72	620	220								
"	26	242	A	M	610	89	700	150								
"	26	251	A	F	510	93	420	300								
"	25	201	A	M	720	63	500	420								
"	23	168	J	F	4400	300	1700	3100								
"	24	186	J	F	1800	190	1800	1100								
1-10-55	30	302	A	F	1300	120	1100	430								
"	28	270	A	M	940	140	1500	330								
"	26	224	A	F	680	83	950	310								
"	28	245	A	M	530	77	920	180								
"	28	229	A	F	840	120		300								
"	25	216	A	F	1600	130	2300	520								
"	25	206	A	F	2100	220		1700								
"	23	166	J	M	2700	240	1800	1300								

Station 362 (Hanford) continued

				Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight													
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces		
1-10-55	22	156	J	M	4000	250	4100	1400									
2-7-55	35	442	A	F	310	38	560	120									
"	30	323	A	F	660	71	760	220									
"	29	277	A	F	180	75	940	210									
"	27	266	A	F	1100	63	1800	320									
"	27	258	A	F	790	77	1400	220									
"	25	195	A	F	3900	251	3600	1500									
"	24	185	A	M	3000	510	3500	82									
"	24	168	A	F	2300	170	2200	730									
3-21-55	33	410	A	F	180	6	280	89									
"	28	338	A	F	200	23	280	24									
"	25	273	A	F	590	57	1300	260									
"	26	256	A	F	430	31	440	210									
"	26	281	A	M	150	20	220	43									
"	25	229	A	M	1930	151	2200	680									
"	26	227	A	F	480	25	520	110									

Station 362 (Hanford) continued

			Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight												
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
3-21-55	26	216	A	F	1900	122	900	400							
"	25	190	A	M	900	42	890	220							
4-11-55	35	560	A	F	230	58	600	150							
"	29	296	A	F	32	12	84	22							
"	26	206	A	M	260	18	340	82							
"	25	214	A	F	210	12	180	130							
"	24	184	A	M	1500	72	1500	580							
5-4-55	28	305	A	F	170	29	540	270							
"	26	232	A	F	290	43	830	480							
5-9-55	30	347	A	M	140	59	760	180							
6-1-55	28	277	A	F	430	53	790	220							
"	31	321	A	F	78	23	260	91							
"	24	197	A	F	4100	250	3700	1900							
"	25	224	A	F	1600	190	1900	2300							

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
7-19-55	25	231	A	F	650	60	830	230								
7-26-55	28	267	A	F	480	58	500	150								
10-3-55	29	347	A	F	2500	270	4100	730								
"	38	701	A	F	2600	400	3900	1100								
"	30	421	A	M	2500	340	2200	880								
"	37	680	A	F	1800	160	3200	990								
"	28	362	A	M	1800	260	2200	560								
"	27	310	A	F	2300	290	4500	6000								
"	26	220	A	F	8100	490	4200	1200								
"	28	293	A	M	1600	200	2100	650								
"	26	224	A	M	9700	680	4100	5300								
"	28	285	A	F	1000	140	2000	5300								
"	30	352	A	F	1600	260	3900	1200								
"	30	344	A	F	1300	220	2000	720								
"	26	277	A	F	1300	170	2200	270								
"	23	176	J	F	13000	920	5300	7200								

Station 362 (Hanford) continued

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
11-2-55	30	390	A	F	950	170	2200	400								
"	30	400	A	F	570	97	980	330								
"	28	308	A	F	230	35	260	180								
"	26	291	A	F	280	40	220	350								
"	29	322	A	F	3300	360	2300	2000								
"	28	363	A	F	960	110	1930	440								
"	28	264	A	M	1500	330	1600	3300								
"	24	189	A	F	690	80	380	600								
"	25	190	A	M	1300	170	1100	1200								
"	23	156	F	M	4200	280	2600	2700								
12-12-55	28	233	A	F	160	97	690	230								
"	24	193	A	F	510	110	520	710								
12-20-55	37	645	A	F	730	86	690	550								
"	31	375	A	F	1200	67	840	860								
"	28	278	A	F	600	93		300								
"	30	306	A	M	430	88	550	290								
"	27	226	A	F	170	25	270	81								

Station 362 (Hanford) continued

Station 502 (Harrford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight													
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces			
12-20-55	26	218	A	F	980	110	1100	500										
"	26	218	A	F	290	31	170	160										
"	26	209	A	M	180	29	160	87										
"	27	222	A	F	310	55	410	73										
"	26	211	A	M	590	73	730	260										
1-9-56	38	705	A	F	300	54	410	230										
"	37	540	A	F	160	42	290	100										
"	29	304	A	F	170	35	460	110										
"	29	306	A	M	240	51	490	270										
"	29	300	A	F	310	63	480	230										
"	25	215	A	F	560	63	550	330										
"	31	377	A	F	310	61	620	210										
"	28	266	A	F	540	100	920	200										
"	28	250	A	F	170	67	520	150										
"	25	190	A	F	400	52	360	290										

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
2-15-56	29	309	A	F	180	15	180	86								
"	27	257	A	M	230	31	360	110								
"	28	241	A	F	83	17	130	32								
"	30	313	A	F	24	7	20	26								
"	28	265	A	M	65	10	45	70								
"	29	317	A	M	71	11	49	78								
"	35	581	A	M	120	15	75	120								
"	35	558	A	M	110	18	130	50								
"	32	396	A	F	82	15	140	5								
"	28	275	A	F	110	13	130	76								
"	28	295	A	F	120	22	270	0								
"	26	257	A	F	460	32	530	0								
"	22	280	A	F	180	24	360	86								
"	25	215	A	F	200	19	260	76								
"	22	127	J	M	180	16	110	180								
2-28-56	28	254	A	F	91	11	30	1								
"	30	340	A	F	110	19	140	88								
"	28	277	A	M	44	9	50	44								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10 ⁻⁶ µc/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
2-28-56	28	243	A	F	90	10	50	66								
3-12-56	27	247	A	M	210	8	57	68								
"	28	270	A	F	150	25	400	83								
"	26	213	A	F	300	28	320	54								
"	26	198	A	F	780	43	710	190								
"	26	216	A	F	620	27	330	130								
"	25	184	A	F	310	15	170	63								
"	24	185	A	M	590	17	300	170								
4-18-56	30	319	A	F	43	9	62	59								
"	30	340	A	F	190	26	340	210								
"	28	310	A	F	150	27	360	130								
"	29	283	A	F	340	33	370	190								
"	29	289	A	M	140	19	170	120								
"	28	249	A	M	180	25	380	65								
"	26	260	A	F	150	34	280	160								
"	28	280	A	M	80	21	230	95								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
4-18-56	28	244	A	F	200	24	310	89								
"	27	247	A	F	200	22	290	82								
4-30-56	35	524	A	F	56	11	80	51								
"	30	348	A	F	150	16	120	70								
"	28	230	A	F	60	12	110	55								
"	27	245	A	F	212	12	190	61								
"	25	210	A	F	230	17	200	160								
"	24	171	A	F	260	13	200	120								
"	23	138	A	M	660	28	280	380								
"	22	132	J	M	510	25	310	230								
"	22	145	J	M	830	36	380	480								
"	21	109	J	F	750	36	430	380								
"	21	109	J	F	69	27	340	310								
5-1-56	41	787	A	F	59	11	74	59								
"	29	282	A	F	190	16	181	72								
"	26	220	A	F	440	37	300	150								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-1-56	26	213	A	F	76	6	40	9								
"	26	201	A	F	2200	19	170	21								
"	23	153	A	F	1700	58	600	1000								
"	24	183	A	F	240	11	180	97								
5-21-56	31	398	A	F	59	19	82	47								
"	25	179	A	M	48	8	26	46								
6-13-56	29	257	A	F	110	14	35	16								
6-20-56	30	324	A	M	110	14	52	300								
"	29	273	A	F	290	28	340	190								
"	22	117	J	F	2000	82	830	1300								
"	21	101	J	M	740	50	330	250								
7-16-56	33	387	A	F	840	120	1500	190								
"	31	307	A	F	430	39	580	110								
"	27	256	A	F	1600	32	250	40								
"	29	268	A	F	140	20	180	bkg								

Station 362 (Hanford) continued

Station 362 (Hamford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
7-16-56	28	231	A	M	260	32	580	150								
"	30	276	A	F	2300	10	170	56								
"	27	190	A	F	79	20	140	68								
"	24	160	A	F	240	13	250	200								
"	24	147	A	F	310	26	320	75								
"	21	119	J	-	280	36	140	90								
8-8-56	28	225	A	F	880	58	1400	380								
"	27	234	A	F	970	65	1500	260								
"	24	216	A	F	1400	89	1700	910								
10-2-56	38	755	A	F	2700	270	4000	780								
"	27	215	A	F	2500	190	2700	420								
"	35	454	A	F	2100	160	1900	550								
"	34	429	A	F	4300	450	680	880								
"	28	239	A	F	2900	240	7500	620								
"	26	230	A	F	4400	350	420	1500								
"	28	189	A	F	3000	230	3000	670								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10 ⁻⁶ µc/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-2-56	27	246	A	F	2000	190	4200	540								
"	26	211	A	F	3300	260	3900	700								
"	26	226	A	M	6400	540	6400	1800								
"	25	179	A	M	11000	550	9700	2200								
11-1-56	30	319	A	F	1000	83	920	560								
11-12-56	34	515	A	M	6200	870	3600	3500								
"	32	430	A	F	5500	670	5600	2200								
"	29	341	A	M	4600	1100	5900	1400								
"	29	260	A	M	2600	300	2900	780								
"	28	250	A	F	3200	330	3300	720								
"	27	250	A	F	3100	370	4600	490								
"	26	202	A	M	2800	200	1400	490								
"	26	212	A	M	5500	670	4200	1600								
"	25	202	A	F	6300	890	5600	1100								
"	26	296	A	F	3300	260	2600	540								
"	26	177	A	F	4400	640	5300	930								
"	24	177	A	F	4400	460	3400	1200								

Station 362 (Hanford) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
11-12-56	25	159	A	M	5900	550	4500	1000								
"	23	146	A	M	4800	440	3000	870								
"	23	139	J	F	17000	930	5100	2600								
"	22	122	J	F	11000	700	4400	2700								
"	19	91	J	M	35000	2700	7100	27000								
"	19	84	J	-	45000	2500	8500	31000								
"	19	88	J	-	30000	2000	7000	21000								
12-11-56	24	155	A	F	4800	350	4100	860								
"	23	150	A	F	6900	520	3400	3500								
"	10	25	J	-	23300	1300	2700	14000								

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-2-54	27	283	A	F	1100	50	940	370								
"	30	360	A	M	710	28	620	180								
"	36	534	A	F	220	20	240	27								
"	33	423	A	M	880	51	700	150								
"	27	230	A	M	1700	170	980	400								
"	36	570	A	F	410	26	440	130								
"	30	341	A	M	1500	96	1000	470								
"	29	504	A	M	810	17	780	190								
"	29	317	A	F	1200	71	1100	240								
"	28	290	A	M	2300	92	1300	610								
"	30	263	A	F	1300	71	760	260								
"	31	328	A	F	700	33	790	150								
"	23	172	J	M	4900	149	1400	1800								
"	23	171	J	M	7400	190	1200	1800								
3-29-54	36	614	A	M	80	24	140	64								
"	31	349	A	M	260	38	420	94								
"	31	364	A	M	170	30	170	24								

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-29-54	24	176	J	-	800	130	950	510								
5-11-54	33	321	A	F	96	36	230	30								
"	29	324	A	F	21	6	33	12								
"	24	187	A	F	660	57	470	680								
10-18-54	40	999	A	F	360	62	380	1500								
"	34	500	A	F	210	26	220	240								
"	29	308	A	F	330	70	940	160								
"	28	315	A	F	490	54	480	430								
"	27	285	A	M	290	44	250	140								
"	25	223	A	F	1100	69	1200	290								
"	28	251	A	M	950	94	650	290								
"	25	234	A	M	820	77	730	370								
"	24	212	A	F	910	84	1400	380								
"	24	204	A	F	1200	360	1900	430								
"	23	168	A	F	970	90	630	470								

Station 353 (Ringold) continued

			Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight												
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
11-15-54	27	229	A	M	1200	130	1300	680							
"	30	318	A	M	840	79	670	290							
"	27	293	A	F	410	38	400	230							
"	24	229	A	F	990	160	570	490							
"	28	284	A	F	860	58	880	200							
"	26	219	A	M	840	71	1100	250							
"	25	171	A	F	1400	98	1600	490							
"	23	148	J	M	5800	320	3600	4100							
12-7-54	32	400	A	F	360	195	770	77							
"	21	131	J	M	2900		1300	2400							
"	24	197	J	M	1600	150	1000	1300							
1-10-55	31	339	A	F	440	113	440	110							
"	30	302	A	F	160	33	250	30							
"	28	217	A	F	290	77	480	69							
"	27	228	A	F	160	29	280	103							
"	26	191	A	F	410	48	640	190							

Station 353 (Ringold) continued

Station 600 (Atingold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
1-10-55	25	178	A	F	960	140	1100	380								
"	22	129	J	M	2500	180	1500	1700								
2-7-55	25	212	A	F	300	12	180	140								
3-7-55	28	252	A	F	48	11	110	0								
"	27	239	A	F	45	21	240	56								
"	24	178	A	F	83	16	240	11								
4-5-55	26	277	A	F	530	72	670	380								
"	29	338	A	F	36	9	26	60								
5-10-55	33	468	A	M	130	26	209	97								
"	27	241	A	M	109	9	52	0								
"		344	A	M	182	24	230	79								
"	26	227	A	M	330	42	290	100								
"	24	189	A	M	850	72	620	230								

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} μ c/g Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
7-20-55	29	401	A	M	7	6	31	600								
"	21	130	J	M	390	27	100	170								
10-6-55	28	260	A	F	780	140	1300	360								
"	25	204	A	M	3200	170	1500	2100								
"	23	268	A	M	3600	290	1600	1500								
"	18	84	J	-	11000	670	2500	8000								
11-1-55	33	410	A	M	1200	250	1500	890								
"	30	325	A	M	3100	520	1800	2600								
"	25	218	A	F	2300	97	1400	310								
"	25	220	A	M	1200	130	1500	1300								
"	24	177	A	M	6400	420	2900	4500								
"	26	216	A	M	2100	190	1200	1500								
"	27	216	A	M	3900	240	1900	2500								
"	25	204	A	F	3500	220	980	1600								
"	24	162	A	M	5300	350	2800	2000								
"	20	100	J	M	17000	750	4200	13000								

Station 353 (Ringold) continued

Station 333 (Ringold) continued

Date		Standard Length in Centimeters		Weight in Grams		Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
								Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
12-13-55	24	164	A	F	830	92	770	390										
"	26	231	A	F	560	73	600	370										
"	25	208	A	M	470	110	540	400										
"	20	108	J	-	4700	200	1600	3500										
"	20	113	J	F	3500	150	1100	2600										
"	21	137	J	F	240	59	190	220										
1-11-56	28	274	A	M	430	78	1100	0										
"	29	241	A	F	170	31	180	27										
"	25	213	A	F	470	30	400	200										
"	26	217	A	F	360	30	380	140										
"	25	191	A	F	800	32	460	400										
"	24	191	A	M	500	36	580	260										
"	24	183	A	F	1100	60	800	650										
"	24	200	A	F	810	91	920	290										
3-15-56	31	326	A	F	73	8	73	49										
"	29	272	A	F	41	7	75	26										

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
3-15-56	28	227	A	F	220	8	180	130								
"	24	271	A	M	250	19	290	130								
"	24	165	A	M	720	32	810	350								
"	23	136	A	F	620	33	300	260								
"	22	133	J	M	460	27	210	410								
"	22	135	J	M	570	31	290	370								
"	22	135	J	M	700	29	350	350								
"	20	100	J	F	750	36	380	360								
4-17-56	28	275	A	F	340	32	300	260								
"	28	268	A	F	250	18	180	110								
"	27	228	A	F	150	12	270	85								
"	27	256	A	F	220	34	260	130								
"	26	207	A	F	43	8	37	36								
"	26	210	A	F	330	21	230	260								
"	25	188	A	F	280	23	390	200								
"	24	186	A	F	350	26	450	280								
"	22	145	J	F	240	14	190	120								

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
4-17-56	22	144	J	F	2900	110	2000	2100								
5-16-56	37	800	A	F	31	9	49	0								
"	33	426	A	F	52	10	110	18								
"	31	365	A	M	28	5	30	3								
"	31	306	A	F	39	6	66	26								
"	30	340	A	F	45	9	60	35								
"	26	230	A	M	340	28	340	87								
"	28	274	A	F	80	12	69	83								
"	23	151	A	M	290	42	300	94								
"	24	169	A	F	360	39	290	200								
"	31	427	A	F	78	13	57	0								
"	27	340	A	F	17	7	15	0								
"	25	230	A	F	290	32	290	280								
"	25	206	A	F	250	31	250	100								
"	25	196	A	M	180	28	160	57								
"	24	184	A	F	170	20	140	94								
"	24	171	A	F	410	51	300	130								

Station 353 (Ringold) continued

Station 353 (Ringold) continued										Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
Date	Standard Length in Centimeters	Weight in Grams	Age		Sex	Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces				
5-16-56	23	157	A	M		210	25	270	55											
"	23	170	A	F		120	15	220	84											
"	25	178	A	M		410	40	330	280											
"	24	170	A	M		450	33	200	220											
"	22	133	J	F		1100	69	380	970											
"	20	112	J	F		340	16	17	230											
6-11-56	25	206	A	M		77	20	78	46											
"	26	195	A	F		150	0	86	25											
"	29	257	A	F		130	29	93	25											
7-11-56	47	1022	A	F		27	11	40	0											
"	28	236	A	F		100	20	110	52											
"	30	266	A	F		140	15	130	42											
"	26	197	A	M		110	-	140	61											
"	28	231	A	M		140	14	120	56											
"	25	178	A	-		600	32	520	130											
"	26	185	A	F		230	11	230	88											

Station 353 (Ringold) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight								Spleen	Skin	Feces
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart			
7-11-56	22	125	J	M	520	30	89	220							
"	21	102	J	F	200	15	190	260							
"	21	122	J	F	650	36	290	690							
8-13-56	37	639	A	M	240	33	210	140							
"	32	256	A	F	1000	180	1400	640							
"	30	280	A	M	2600	310	2600	320							
"	28	227	A	M	1000	50	1000	150							
"	25	160	A	F	2000	91	1800	1100							
"	23	151	A	F	1000	43	700	170							
"	22	135	J	M	6100	290	2700	2500							
"	21	109	J	M	770	17	1500	430							
"	21	108	J	M	5900	180	3400	2600							
"	20	86	J	-	4000	360	2600	1500							
10-8-56	26	200	A	F	4700	280	3900	960							
"	36	343	A	M	6600	490	4300	2100							
"	29	262	A	M	3700	780	4200	980							

Station 353 (Ringold) continued

Concentration in Units of 10 ⁻⁶ µc/g Wet Weight															
Date	Standard Length in Centimeters	Weight in Grams	Age	Sex											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
10-8-56	27	262	A	M	4800	400	4400	1100							
"	23	148	A	M	5300	210	3100	960							
"	21	175	J	M	1600	170	2100	470							
"	20	142	J	F	4400	230	2000	630							
"	20	97	J	-	12000	510	4400	2700							
"	11	76	J	F	32000	2400	11000	29000							
11-8-56	25	235	A	M	5900	730	4400	2700							
"	28	247	A	M	5300	750	5000	3000							
"	26	215	A	F	5000	490	3000	1700							
"	24	194	A	M	8500	1100	6600	9200							
"	25	155	A	F	5100	220	2800	780							
"	24	157	A	F	3500	520	2500	1300							
"	24	143	A	F	3800	470	3400	1600							
"	21	125	A	F	6000	740	4300	1500							
"	21	130	J	M	18000	939	850	6200							
"	11	87	J	-	4200	390	2600	1500							
12-12-56	23	136	A	M	1600	120	1000	310							

Station 340 (Richland)

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
1-10-53			A		920	65	380									
"			A		1900	160	730									
1-11-53	28		A		720	160	900									
"			A		170	180	480									
"			A		2000	130	1500									
"			A		720	81	340									
"					1300	240	1200									
"					1500	240	250									
"					67	150	610									
"					130	140	170									
"					390	170	550									
"					640	80	350									
2-7-53	28		A	F	340	120	670									
"	26		A	F	700	110	700									
"	24		A	F	580	170	670									
"	16		J	-	1540	410	1600									
"	18		J	-	1600	240	1200									

Station 340 (Richland) continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-3-54					920	62	-	420								
10-26-54	24	153	A	F	1700	96	810	500								
"	22	143	A	M	3100	160	860	820								
"	24	150	A	M	1400	65	790	450								
"	24	149	A	F	1300	72	760	330								
"	23	151	A	F	990	150	660	390								
"	20	91	J	-	4500	280	1500	1600								
11-6-54			A		1600											
"			A		1000											
"			A		660											
"	20	103	J	-	4700	380	1800									
10-25-55	28	316	A	F	310	37	230	95								
"	27	331	A	F	530	48	250	290								
"	28	333	A	F	890	65	220	520								
1-3-56	26	199	A	M	240	20	280	78								
"	29	322	A	F	85	17	44	41								

Station 293

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
10-4-55	24	135	A	M	1400	74	290	850								
11-9-55	28	289	A	M	590	53	220	430								
"	30	393	A	M	450	55	150	250								
"	29	414	A	M	430	30	150	170								
"	24	329	A	M	860	50	87	530								
"	28	237	A	M	700	40	120	500								
"	31	407	A	F	190	27	120	130								
"	31	506	A	F	140	24	95	75								
"	31	475	A	F	560	53	240	430								
"	35	759	A	-	300	48	190	200								
3-7-56	28	240	A	M	15	5	13	86								
"	26	229	A	F	21	4	30	bkg								
"	26	188	A	F	12	5	27	9								
"	27	247	A	F	13	4	14	37								
"	30	418	A	M	42	11	9	50								
"	23	167	A	F	5	bkg	10	bkg								
"	20	103	J	F	15	2	8	45								
3-8-56	27	207	A	F	bkg	6	16	132								

Station 293 continued

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight											
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces	
5-15-56	28	257	A	F	6	6	24	13								
"	30	300	A	F	10	9	32	26								
"	26	200	A	F	63	12	98	19								
"	26	203	A	F	78	14	120	13								
"	25	187	A	M	78	8	63	bkg								
"	20	108	J	M	71	11	49	51								
"	19	104	J	F	220	19	130	170								
8-29-56	21	105	J	-	1300	81	680	420								
9-25-56	22	143	J	M	2000	120	1200	960								
11-29-56	33	520	A	F	1000	94	440	6300								
"	28	248	A	F	640	69	320	270								
"	24	185	A	M	630	59	250	350								
"	25	190	A	M	500	46	180	210								
"	25	225	A	M	800	57	220	500								
"	27	242	A	F	280	54	250	120								

Station 285

Date	Standard Length in Centimeters	Weight in Grams	Age	Sex	Concentration in Units of 10^{-6} $\mu\text{c/g}$ Wet Weight										
					Scales	Muscle	Liver	Bone	Ovary	Testis	Kidney	Heart	Spleen	Skin	Feces
2-14-51	11	15	J	-	17	4		19							
11-26-53	31	384	A	F	250	39	250	150							
"	27	261	A	-	430	51	340	260							
"	23	166	J	-	1200	79	600	640							
"	22	131	J	-	2000	140	710	1300							
12-14-53	22	141	J	-	1800	127	630	1320			350				
1-4-54	22	130	J	-	630	63	330	620							
10-21-54	32	408	A	M	290	55	420	140							
"	28	302	A	M	840	79	440	400							
"	25	265	A	F	460	49	450	330							
"	26	235	A	F	300	44	360	1400							
"	22	138	J	-	37	930	250	1800							
10-19-55	25	190	A	F	1600	120	380	1600							
"	23	197	A	M	1000	79	240	1100							

