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RADIOACTIVITY SURVEY DATA in Japan

NUMBER 53
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National Institute of Radiological Sciences
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Radioactivity Survey Data in Japan

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CONTENTS

Environmental and Dietary Materials*

(Japan Chemical Analysis Center)

1. Collection and pretreatment of samples

(1) Rain and dry fallout

Rain and dry fallout was collected monthly on a sampling tray, approximately 5000 cm^2 in area, which was filled with water to a depth of 1 cm at the beginning of every month.

The sample was filtered after strontium and cesium carriers were added. The tray was washed with 5ℓ of distilled water and the washing was combined to the filtrate. The sample was passed through a cation exchange column (500 mℓ of Dowex 50W X8, 50 ~ 100 mesh, Na form) at a rate of 80 mℓ/min.

(2) Airborne dust

Airborne dust was collected by an electrostatic precipitator or a filter air sampler for every three months at a rate of more than 3000 m^3 per month. The sampling was done 1 to 1.5 meters above the ground.

(3) Service water and freshwater

Service water, 100ℓ each, was collected at an intake of the water-treatment plant and at the tap after water was left running for five minutes. Water, to which added carriers of strontium and cesium immediately after sampling, was vigorously stirred and filtered. The subsequent process was the same as that described in the section (1). Freshwater was treated in the same way as the service water.

(4) Soil

Soil was collected from the location in the spacious and flat area without past disturbance on the surface caused by duststorms, inflow and outflow due to precipitation, and so on. Any places located under trees in a forest, in a stony area or inside of river banks were avoided. Soil was taken from two layers of different depths, 0 ~ 5 cm and 5 ~ 20 cm. In the course of air-drying, lumps were crushed by hand, and roots of plants and pebbles were removed. The soil was then passed through a 2 mm sieve to remove small gravels.

(5) Sea water

Sea water was collected at the fixed stations where the effect of terrestrial fresh water from rivers was expected to be negligibly small. A special consideration was also given to weather conditions. The sampling was carried out when there was no rainfall for the last few days. To prevent contamination, water samples were collected at the bow of a sampling boat just before she stood still by scooping surface water using a polyethylene bucket. Immediately after the collection, the samples were acidified to a pH lower than 3 by adding concentrated hydrochloric acid in a ratio of 1 mℓ to 1 ℓ of sea water, and then stored in 20 ℓ polyethylene containers. The sampling equipments as well as containers were thoroughly rinsed with dilute hydrochloric acid and then with distilled water before use. Two hundred milliliters of sea water was also collected at the same stations for the determination of chlorinity.

(6) Sea sediments

Sediment was collected in the same area as that for the sea water sample, taking the following criteria into account:

a. The depth of water exceeds 1 m at low tide.
b. No significant sedimental movement is observed in the vicinity of concern.
c. Mud, silt and fine sand are preferable.

A conventional sediment sampling device was used for collecting the top few centimeters of surface sediment. Approximately 4 kg of the sample in wet weight was spread on a large porcelain dish and dried in an electric oven at 105 to 110 °C to a constant weight.

(7) Total diet

A full one day ordinary diet including three meals, water, tea and other in-between snacks for five persons was collected as a sample of "total diet". The sample in a large stainless steel pan was carbonized carefully by direct application of gas flame, and was transferred to a porcelain dish and then ashed at 500°C in an electric muffle furnace.

(8) Rice

Polished rice was collected in producing districts at the harvest and in consuming areas when new crops were first put on sale. The sample was carbonized and ashed in a porcelain dish.

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* Samples were sent to the Center from 32 contracted prefectures.

(9) Milk

Raw milk was collected in producing districts and commercial milk was purchased in consuming districts. Milk in a stainless steel pan or a porcelain dish was evaporated to dryness followed by carbonization and ashing.

(10) Vegetables

Spinach and Japanese radish were selected as the representatives for leaf vegetables and for non-starch roots, respectively. After removing soil, the edible part of vegetable sample was dried and carbonized in a stainless steel pan or a porcelain dish.

(11) Tea

Five hundred grams of manufactured green tea was collected, carbonized and ashed in a stainless steel pan or a porcelain dish.

(12) Fish, shellfish and seaweeds

a. Sea fish and freshwater fish

Fish was rinsed with water and blotted with a filter paper. Only the edible part was used in case of larger sized fish, and the whole part was used in case of smaller ones. Each sample was weighed and placed in a stainless steel pan or a porcelain dish. After carbonized, the sample was ashed in an electric muffle furnace.

b. Shellfish

Approximately 4 kg of shellfish including the shells was collected or purchased. After removing the shells, it was treated in the same way as that for the sea fish.

c. Seaweeds

Edible seaweeds were collected and rinsed with water to remove sand and other adhering matters on the surface. These were removed of excess water, weighed, dried and ashed.

Table 1 shows detailes of sample collection.

Table 1 Details of sample collection

Sample	Frequency of sampling	Quantity of sample
= Environmental materials =		
(1) Rain and dry fallout		
1 for domestic program	monthly	
2 for WHO program	monthly	
(2) Airborne dust	quarterly	>3000 m^3/month
(3) Service water and freshwater		
1 Service water (sourse water)	semiyearly (June and December)	100 ℓ
2 Service water (tap water)	semiyearly (June and December)	100 ℓ
3 Freshwater	yearly (fishing season)	100 ℓ
(4) Soil		
1 0 ~ 5 cm	yearly (June or July)	4 kg
2 5 ~ 20 cm	yearly (June or July)	4 kg
(5) Sea water	yearly (July or August)	40 ℓ
(6) Sea sediments	yearly (July or August)	4 kg
= Dietary materials =		
(7) Total diet	semiyearly (June, November or December)	daily amount for 5 person
(8) Rice		
1 Producing districts	yearly (harvesting season)	5 kg (polished rice)
2 Consuming districts	yearly (harvesting season)	5 kg (polished rice)
(9) Milk		
1 Producing districts for WHO program	quarterly (February, May, August and November)	3 ℓ
2 Producing districts for domestic program	semiyearly (February and August)	3 ℓ

Sample	Frequency of sampling	Quantity of sample
3 Consuming districts	semiyearly (February and August)	3 ℓ
4 Powdered milk	semiyearly (April and October)	2 ~ 3 kg
(10) Vegetables		
1 Producing districts	yearly (harvesting season)	4 kg
2 Consuming districts	yearly (harvesting season)	4 kg
(11) Tea	yearly (the first harvesting season)	500 g (manufactured tea)
(12) Fish, shellfish, and seaweeds		
1 Sea fish	yearly (fishing season)	4 kg
2 Freshwater fish	yearly (fishing season)	4 kg
3 Shellfish	yearly (fishing season)	4 kg
4 Seaweeds	yearly (fishing season)	2 ~ 3 kg

2. Preparation of samples for analysis

(1) Rain, service water and freshwater

Strontium and cesium were eluted with hydrochloric acid from the cation exchange column. The residue of rain sample on the filter paper was ashed in an electric muffle furnace and the ash was dissolved in hydrochloric acid. The insoluble part was filtered and washed. The filtrate and the washings were combined to the previous eluate and used for radiochemical analysis.

(2) Soil

Air-dried soil was passed through a 20 mesh sieve. The sieved sample was heated, in the presence of strontium and cesium carriers, together with sodium hydroxide. The sample was then heated with hydrochloric acid and the insoluble part was filtered and washed. The combined solution of the filtrate and washings was used for radiochemical analysis.

(3) Sea sediments

After removal of pebbles, shells and other foreign matters, the sediment sample was dried in a hot-air oven and ground finely with a mortar. The sample was passed through a 20 mesh sieve. The further preparation of the sample was the same as that described in the section 2-(2).

(4) Rice

The ashed sample was pulverlized with a porcelain mortar and passed through a 42 mesh sieve. The sieved sample to which both strontium and cesium carriers were added, was digested with hydrochloric acid by heating. After the sample was heated again with nitric acid to dryness, strontium and cesium were extracted with hydrochloric acid and water. The insoluble part was filtered and washed. The filtrate and washings were combined for subsequent radiochemical analysis.

(5) Airborne dust, diet, milk, vegetable, fish and shellfish, seaweeds, tea, and others

These ashed samples were treated with the same procedure as that described in the section 2-(4).

3. Separation of strontium-90 and cesium-137

(1) Strontium-90

Sample solutions, prepared as in the foregoing sections 2-(1) through 2-(5), were neutralized with sodium hydroxide. After sodium carbonate was added, the precipitate of strontium and calcium carbonates was separated. The supernatant solution was retained for cesium-137 determination. The carbonates were dissolved in hydrochloric acid and calcium and strontium were precipitated as oxalates. The precipitate was dissolved in nitric acid and strontium was separated from calcium by successive fuming nitric acid separations. Iron scavenge was made after addition of ferric iron carrier followed by barium chromate separation after addition of barium carrier to remove radium, its daughters and lead. Strontium was recovered as carbonate, and the precipitate was dried and weighed to determine strontium recovery. The strontium carbonate was dissolved in hydrochloric acid and the iron carrier was added. The solution was allowed to stand

for two weeks for strontium-90 and yttrium-90 to attain equilibrium. The yttrium-90 was coprecipitated with ferric hydroxide and the precipitate was filtered off, washed and counted.

(2) Cesium-137

The supernatant separated from the strontium fraction in the solution was acidified with hydrochloric acid. While stirring the solution, cesium was adsorbed on ammonium molybdophosphate.

After filtered off and washed with dilute nitric acid, the precipitate was dissolved in 2.5N sodium hydroxide solution. Ammonia was removed completely from the solution by boiling. The solution was adjusted to pH 8.2 with hydrochloric acid and allowed to cool. Molybdenum hydroxide which came out in the solution, was filtered off and washed with water. In such circumstance that ontamination by rubidium-87 was not negligible for the measurement of cesium-137, the following ion-exchange procedure was applied. A fixed amount of ferric chloride solution was added to the solution dissolved with 2.5N sodium hydroxide. Ammonia and molybdenum hydroxide were removed as described above. Ethylenediaminetetraaceticacid tetrasodium salt was added to the filtrate and washings. Cesium and rubidium were adsorbed on a cation exchange resin. Cesium was separated from rubidium by eluting with hydrochloric acid.

To this eluate or the filtrate and washings after removing molybdenum hydroxide, chloroplatinic acid solution was added to precipitate cesium. The precipitate was filtered onto a tared paper in a demountable filter and washed with water and then ethanol. After fixing the filter paper on a tared planchette and drying it, the chemical yield of cesium was determined by weighing the precipitate with the planchette. Radioactivity from cesium-137 was measured for this precipitate.

4. Determination of stable strontium, calcium and potassium

A weighed amount of soil or sea sediment was treated under heating with sodium hydroxide and then with hydrochloric acid for extraction. A weighed aliquot of ashed samples of total diet, vegetables, milk, fish, shellfish or seeweeds was digested using hydrochloric acid or nitric acid, hydrofluoric acid being used when necessary. The extract was made up to an appropriate volume with dilute hydrochloric acid. The sample solution was analyzed for calcium by titration with standard potassium permanganate solution after separating calcium as oxalate. Atomic absorption spectroscopy was applied when appropriate. Stable strontium and potassium were determined by atomic absorption and flame emission spectrometry, respectively.

5. Counting

After the radiochemical separation, the mounted precipitates were counted for activity using low background beta counters normally for 60 min. Net sample counting rates were corrected for counter efficiency, recovery, self-absorption and decay to obtain the content of strontium-90 and cesium-137 radio activity per sample aliquot. From the results, concentrations of these nuclides in the original samples were calculated.

6. Results

(1)-1 Strontium-90 and Cesium-137 in Rain and dry fallout (for domestic program)

(from Jan. 1980 to Jul. 1980)

– continued from No. 52 of this publication –

Table (1)-1: Strontium-90 and Cesium-137 in Rain and dry fallout

Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
January, 1980				
Sapporo, HOKKAIDO	37	110.0	0.010 ± 0.0010	0.018 ± 0.0012
Aomori, AOMORI	28	56.8	0.017 ± 0.0011	0.030 ± 0.0014
Sendai, MIYAGI	31	25.3	0.006 ± 0.0008	0.010 ± 0.0009
Yamagata, YAMAGATA	34	82.0	0.007 ± 0.0008	0.011 ± 0.0010
Futaba-gun, FUKUSHIMA	29	41.2	0.006 ± 0.0008	0.008 ± 0.0008
Mito, IBARAGI	28	53.5	0.003 ± 0.0006	0.005 ± 0.0008
Shinjuku, TOKYO	31	107.2	0.003 ± 0.0007	0.010 ± 0.0009
Yokohama, KANAGAWA	29	50.4	0.005 ± 0.0007	0.007 ± 0.0008
Fukui, FUKUI	28	550.4	0.037 ± 0.0016	0.059 ± 0.0018
Shizuoka, SHIZUOKA	32	129.5	0.006 ± 0.0008	0.010 ± 0.0009
Nagoya, AICHI	26	89.3	0.003 ± 0.0007	0.009 ± 0.0009
Kyoto, KYOTO	26	51.1	0.004 ± 0.0007	0.005 ± 0.0008
Kobe, HYOGO	35	81.2	0.006 ± 0.0007	0.010 ± 0.0009
Wakayama, WAKAYAMA	25	62.3	0.004 ± 0.0008	0.011 ± 0.0010
Tottori, TOTTORI	31	176.50	0.040 ± 0.0017	0.066 ± 0.0020
Matsue, SHIMANE	33	129.3	0.027 ± 0.0013	0.039 ± 0.0015
Hiroshima, HIROSHIMA	32	22.0	0.005 ± 0.0007	0.006 ± 0.0008
Matsuyama, EHIME	36	78.5	0.005 ± 0.0008	0.008 ± 0.0008
Tsukushi-gun, FUKUOKA	27	72.3	0.008 ± 0.0008	0.014 ± 0.0010
Saga, SAGA	29	56.6	0.007 ± 0.0009	0.010 ± 0.0009
Nagasaki, NAGASAKI	28	74.5	0.010 ± 0.0009	0.019 ± 0.0012
Nakagami-gun, OKINAWA	24	100.0	0.008 ± 0.0009	0.009 ± 0.0009
February, 1980				
Sapporo, HOKKAIDO	30	146.5	0.015 ± 0.0011	0.025 ± 0.0012
Aomori, AOMORI	30	62.9	0.007 ± 0.0010	0.017 ± 0.0011
Sendai, MIYAGI	27	35.7	0.001 ± 0.0006	0.002 ± 0.0007
Yamagata, YAMAGATA	32	119.5	0.009 ± 0.0009	0.013 ± 0.0010
Futaba-gun, FUKUSHIMA	30	2.4	0.002 ± 0.0006	0.002 ± 0.0006
Mito, IBARAGI	30	13.0	0.002 ± 0.0007	0.004 ± 0.0007
Shinjuku, TOKYO	30	30	0.003 ± 0.0007	0.004 ± 0.0007
Yokohama, KANAGAWA	32	26.2	0.006 ± 0.0008	0.010 ± 0.0010
Fukui, FUKUI	30	254.2	0.033 ± 0.0015	0.054 ± 0.0017
Shizuoka, SHIZUOKA	30	22.5	0.007 ± 0.0008	0.011 ± 0.0010

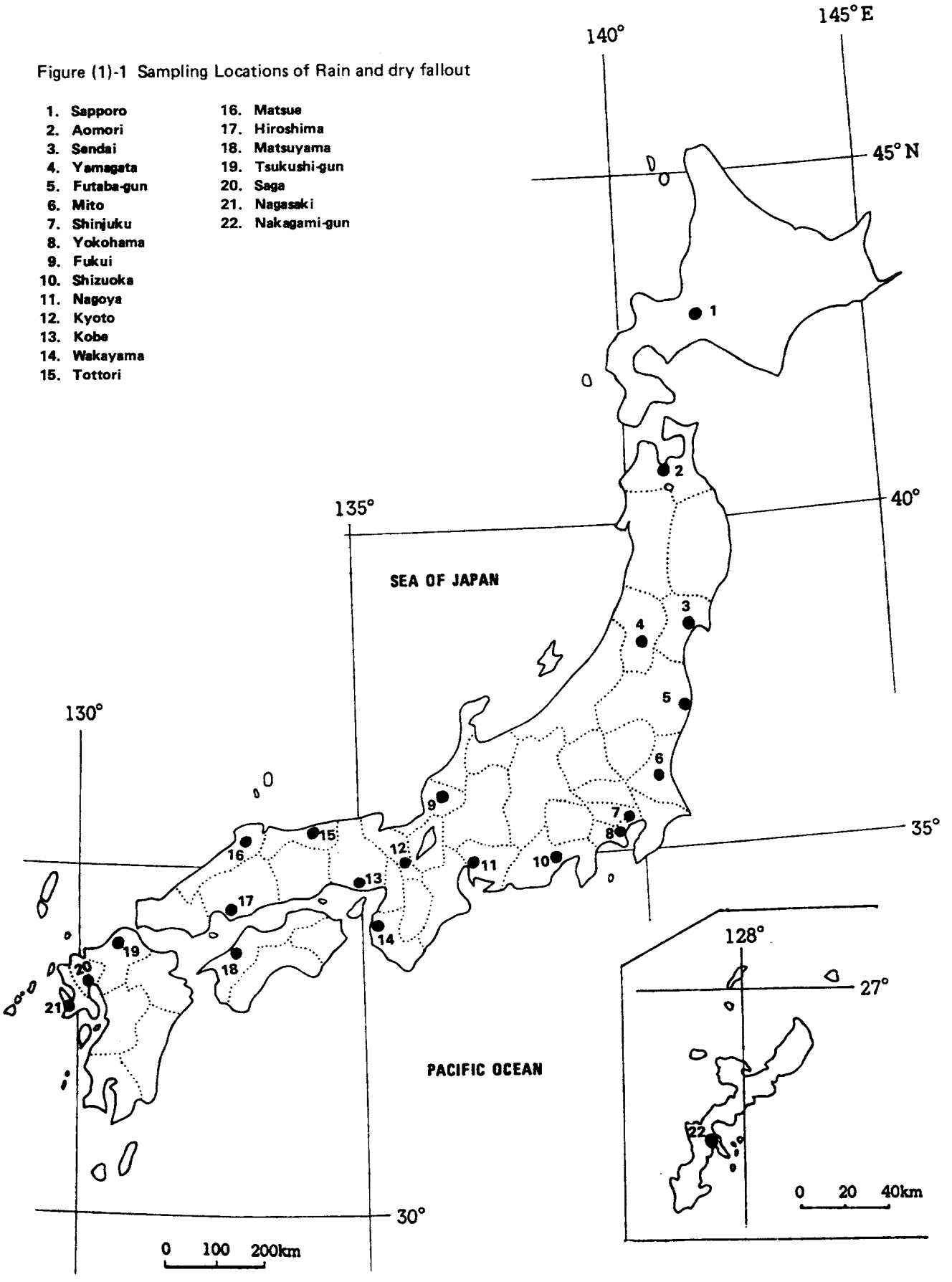
Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Nagoya, AICHI	30	18.1	0.003 ± 0.0007	0.008 ± 0.0009
Kyoto, KYOTO	32	62.2	0.006 ± 0.0008	0.007 ± 0.0008
Kobe, HYOGO	30	29.0	0.003 ± 0.0007	0.006 ± 0.0008
Wakayama, WAKAYAMA	29	43.0	0.006 ± 0.0009	0.008 ± 0.0010
Tottori, TOTTORI	29	70.25	0.023 ± 0.0014	0.043 ± 0.0017
Matsue, SHIMANE	31	50.2	0.014 ± 0.0010	0.021 ± 0.0011
Hiroshima, HIROSHIMA	31	67.0	0.014 ± 0.0011	0.016 ± 0.0011
Matsuyama, EHIME	29	37.5	0.006 ± 0.0008	0.010 ± 0.0009
Tsukushi-gun, FUKUOKA	30	23.4	0.010 ± 0.0009	0.018 ± 0.0011
Saga, SAGA	28	34.9	0.011 ± 0.0009	0.006 ± 0.0008
Nagasaki, NAGASAKI	30	52.0	0.008 ± 0.0010	0.015 ± 0.0011
Nakagami-gun, OKINAWA	30	107.5	0.011 ± 0.0010	0.015 ± 0.0010
March, 1980				
Sapporo, HOKKAIDO	32	111.0	0.016 ± 0.0010	0.028 ± 0.0013
Aomori, AOMORI	32	42.5	0.013 ± 0.0011	0.019 ± 0.0012
Sendai, MIYAGI	32	131.9	0.015 ± 0.0012	0.024 ± 0.0012
Yamagata, YAMAGATA	30	48.0	0.010 ± 0.0009	0.017 ± 0.0011
Futaba-gun, FUKUSHIMA	32	156.5	0.011 ± 0.0009	0.019 ± 0.0011
Mito, IBARAGI	32	158.5	0.013 ± 0.0010	0.022 ± 0.0012
Shinjuku, TOKYO	32	192	0.015 ± 0.0011	0.024 ± 0.0013
Yokohama, KANAGAWA	29	114.0	0.013 ± 0.0011	0.020 ± 0.0012
Fukui, FUKUI	32	198.0	0.018 ± 0.0012	0.028 ± 0.0014
Shizuoka, SHIZUOKA	32	245.5	0.020 ± 0.0012	0.035 ± 0.0015
Nagoya, AICHI	32	148	0.008 ± 0.0009	0.016 ± 0.0010
Kyoto, KYOTO	30	108.9	0.011 ± 0.0010	0.012 ± 0.0010
Kobe, HYOGO	30	89.2	0.012 ± 0.0011	0.020 ± 0.0012
Wakayama, WAKAYAMA	32	67.0	0.012 ± 0.0010	0.017 ± 0.0012
Tottori, TOTTORI	31	107	0.019 ± 0.0013	0.024 ± 0.0014
Matsue, SHIMANE	32	102.1	0.013 ± 0.0010	0.021 ± 0.0012
Hiroshima, HIROSHIMA	30	120.9	0.012 ± 0.0010	0.017 ± 0.0011
Matsuyama, EHIME	32	142.5	0.011 ± 0.0010	0.016 ± 0.0011
Tsukushi-gun, FUKUOKA	32	126.6	0.013 ± 0.0010	0.018 ± 0.0011
Saga, SAGA	29	166.6	0.008 ± 0.0008	0.013 ± 0.0010
Nagasaki, NAGASAKI	32	151.5	0.015 ± 0.0011	0.019 ± 0.0012
Nakagami-gun, OKINAWA	35	112.5	0.008 ± 0.0008	0.014 ± 0.0010
April, 1980				
Sapporo, HOKKAIDO	31	86.5	0.013 ± 0.0011	0.024 ± 0.0013
Aomori, AOMORI	31	90.9	0.021 ± 0.0015	0.022 ± 0.0012
Sendai, MIYAGI	31	77.4	0.021 ± 0.0013	0.034 ± 0.0015
Yamagata, YAMAGATA	32	49.5	0.017 ± 0.0011	0.029 ± 0.0014
Futaba-gun, FUKUSHIMA	31	75	0.013 ± 0.0011	0.019 ± 0.0011

Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Mito, IBARAGI	31	133	0.020 ± 0.0012	0.023 ± 0.0013
Shinjuku, TOKYO	30	111.4	0.019 ± 0.0013	0.034 ± 0.0014
Yokohama, KANAGAWA	34	132.3	0.019 ± 0.0012	0.032 ± 0.0014
Fukui, FUKUI	31	154.5	0.018 ± 0.0013	0.046 ± 0.0016
Shizuoka, SHIZUOKA	29	294.0	0.026 ± 0.0014	0.040 ± 0.0016
Nagoya, AICHI	31	154	0.017 ± 0.0011	0.031 ± 0.0014
Kyoto, KYOTO	31	145.5	0.015 ± 0.0011	0.024 ± 0.0013
Kobe, HYOGO	33	90.8	0.013 ± 0.0010	0.023 ± 0.0013
Wakayama, WAKAYAMA	29	99.7	0.013 ± 0.0010	0.019 ± 0.0012
Tottori, TOTTORI	30	56.75	0.021 ± 0.0013	0.038 ± 0.0015
Matsue, SHIMANE	31	87.8	0.014 ± 0.0011	0.026 ± 0.0013
Hiroshima, HIROSHIMA	34	148.4	0.015 ± 0.0011	0.021 ± 0.0012
Matsuyama, EHIME	32	83.0	0.008 ± 0.0009	0.016 ± 0.0011
Tsukushi-gun, FUKUOKA	31	124.9	0.013 ± 0.0010	0.020 ± 0.0012
Saga, SAGA	30	136.4	0.010 ± 0.0012	0.015 ± 0.0011
Nagasaki, NAGASAKI	30	179.5	0.017 ± 0.0012	0.024 ± 0.0012
Nakagami-gun, OKINAWA	27	518.0	0.023 ± 0.0014	0.040 ± 0.0015
May, 1980				
Aomori, AOMORI	33	32.3	0.012 ± 0.0010	0.019 ± 0.0012
Sendai, MIYAGI	36	116.4	0.012 ± 0.0013	0.021 ± 0.0012
Yamagata, YAMAGATA	35	71.5	0.012 ± 0.0011	0.023 ± 0.0012
Futaba-gun, FUKUSHIMA	32	112	0.014 ± 0.0011	0.028 ± 0.0013
Mito, IBARAGI	33	156.5	0.017 ± 0.0012	0.025 ± 0.0013
Shinjuku, TOKYO	32	162	0.019 ± 0.0012	0.035 ± 0.0014
Yokohama, KANAGAWA	33	205.7	0.023 ± 0.0012	0.034 ± 0.0014
Fukui, FUKUI	33	216.3	0.015 ± 0.0011	0.035 ± 0.0014
Shizuoka, SHIZUOKA	34	344.5	0.034 ± 0.0019	0.059 ± 0.0018
Nagoya, AICHI	33	325	0.027 ± 0.0014	0.049 ± 0.0017
Kyoto, KYOTO	33	216.8	0.014 ± 0.0011	0.022 ± 0.0012
Kobe, HYOGO	31	144.6	0.013 ± 0.0011	0.024 ± 0.0012
Wakayama, WAKAYAMA	33	192.0	0.016 ± 0.0011	0.029 ± 0.0013
Tottori, TOTTORI	33	206	0.020 ± 0.0012	0.027 ± 0.0013
Matsue, SHIMANE	32	194.8	0.015 ± 0.0013	0.025 ± 0.0013
Hiroshima, HIROSHIMA	35	197.7	0.022 ± 0.0013	0.028 ± 0.0013
Matsuyama, EHIME	33	273	0.010 ± 0.0013	0.015 ± 0.0011
Tsukushi-gun, FUKUOKA	32	248.3	0.011 ± 0.0011	0.016 ± 0.0011
Saga, SAGA	35	291.2	0.013 ± 0.0014	0.024 ± 0.0013
Nagasaki, NAGASAKI	33	293.0	0.016 ± 0.0014	0.025 ± 0.0013
Nakagami-gun, OKINAWA	34	100.5	0.010 ± 0.0010	0.017 ± 0.0015

Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
June, 1980				
Sapporo, HOKKAIDO	30	125.5	0.025 ± 0.0013	0.032 ± 0.0014
Aomori, AOMORI	30	76.4	0.009 ± 0.0010	0.012 ± 0.0010
Sendai, MIYAGI	27	86.4	0.012 ± 0.0010	0.017 ± 0.0011
Yamagata, YAMAGATA	28	86.8	0.009 ± 0.0009	0.015 ± 0.0010
Futaba-gun, FUKUSHIMA	31	75	0.011 ± 0.0011	0.013 ± 0.0010
Mito, IBARAGI	30	115.0	0.016 ± 0.0012	0.029 ± 0.0014
Shinjuku, TOKYO	31	172	0.016 ± 0.0013	0.026 ± 0.0013
Yokohama, KANAGAWA	28	150.2	0.015 ± 0.0011	0.021 ± 0.0012
Fukui, FUKUI	30	155.5	0.012 ± 0.0012	0.017 ± 0.0012
Shizuoka, SHIZUOKA	30	281.5	0.019 ± 0.0012	0.032 ± 0.0014
Nagoya, AICHI	30	142	0.018 ± 0.0012	0.022 ± 0.0012
Kyoto, KYOTO	30	105.8	0.009 ± 0.0009	0.016 ± 0.0010
Kobe, HYOGO	32	171.7	0.016 ± 0.0011	0.022 ± 0.0012
Wakayama, WAKAYAMA	32	279.6	0.029 ± 0.0015	0.040 ± 0.0017
Tottori, TOTTORI	30	113.98	0.014 ± 0.0012	0.015 ± 0.0011
Matsuyama, EHIME	29	222	0.010 ± 0.0010	0.015 ± 0.0011
Tsukushi-gun, FUKUOKA	31	194	0.020 ± 0.0013	0.027 ± 0.0013
Saga, SAGA	29	179.7	0.021 ± 0.0013	0.026 ± 0.0013
Nagasaki, NAGASAKI	30	251.5	0.019 ± 0.0013	0.026 ± 0.0013
Nakagami-gun, OKINAWA	29	16.5	0.003 ± 0.0007	0.002 ± 0.0007
July, 1980				
Yamagata, YAMAGATA	32	288.5	0.017 ± 0.0014	0.028 ± 0.0013
Kobe, HYOGO	32	216.8	0.010 ± 0.0010	0.014 ± 0.0010

Figure (1)-1 Sampling Locations of Rain and dry fallout

1. Sapporo
2. Aomori
3. Sendai
4. Yamagata
5. Futaba-gun
6. Mito
7. Shinjuku
8. Yokohama
9. Fukui
10. Shizuoka
11. Nagoya
12. Kyoto
13. Kobe
14. Wakayama
15. Tottori
16. Matsue
17. Hiroshima
18. Matsuyama
19. Tsukushi-gun
20. Saga
21. Nagasaki
22. Nakagami-gun



(1)-2 Strontium-90 and Cesium-137 in Rain and dry fallout (for WHO program)

(from Jan. 1980 to Jul. 1980)

– continued from No. 52 of this publication –

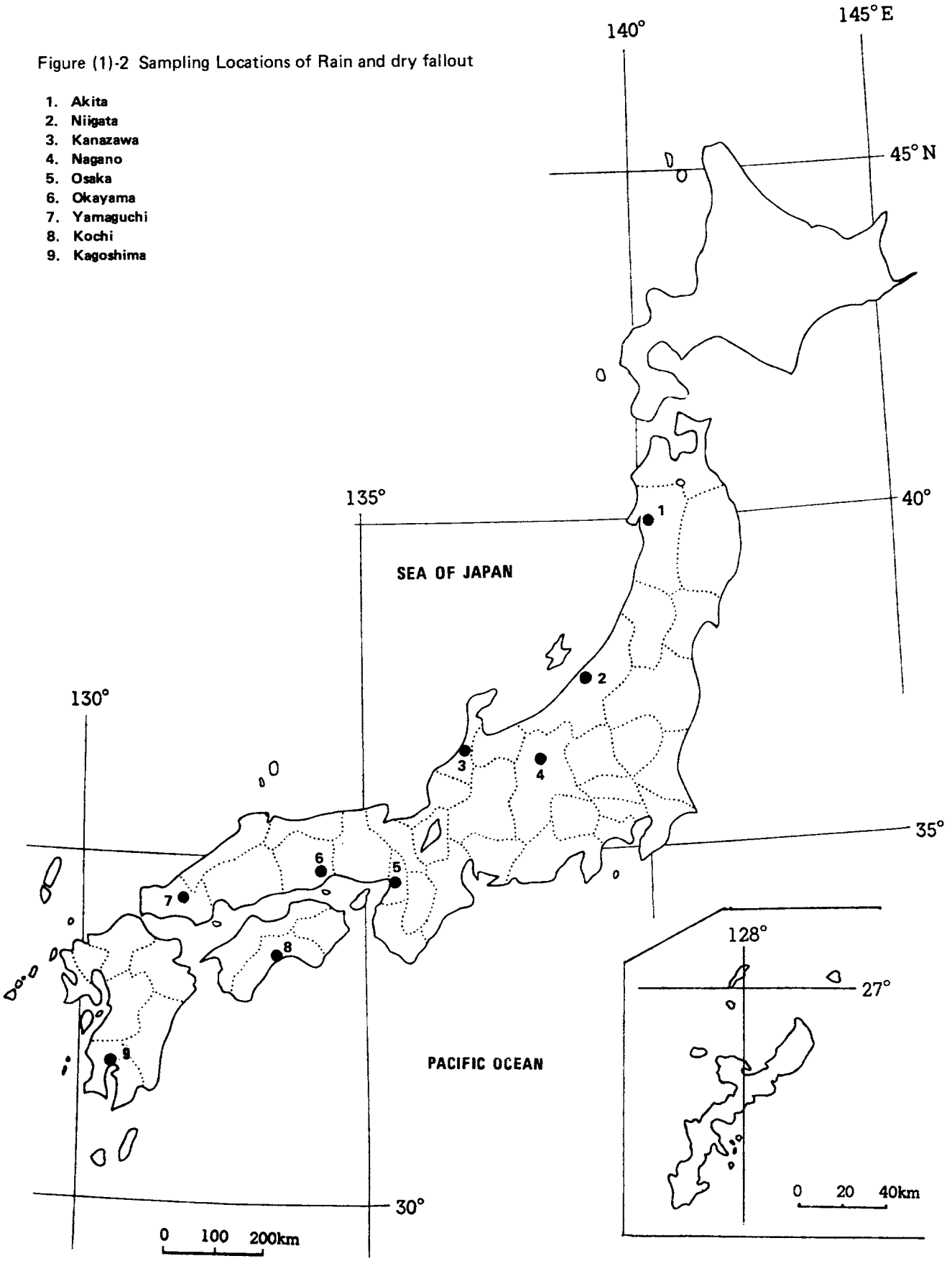
Table (1)-2: Strontium-90 and Cesium-137 in Rain and dry fallout

Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
January, 1980				
Akita, AKITA	33	187.92	0.017 ± 0.0010	0.030 ± 0.0014
Niigata, NIIGATA	28	162.73	0.016 ± 0.0011	0.026 ± 0.0013
Kanazawa, ISHIKAWA	29	236.5	0.033 ± 0.0015	0.056 ± 0.0018
Nagano, NAGANO	29	34.0	0.004 ± 0.0007	0.005 ± 0.0008
Osaka, OSAKA	32	106	0.004 ± 0.0007	0.007 ± 0.0008
Okayama, OKAYAMA	26	55.0	0.002 ± 0.0006	0.004 ± 0.0008
Yamaguchi, YAMAGUCHI	32	45.0	0.009 ± 0.0009	0.018 ± 0.0011
Kochi, KOCHI	25	56.8	0.005 ± 0.0007	0.004 ± 0.0007
Kagoshima, KAGOSHIMA	30	84.5	0.006 ± 0.0007	0.006 ± 0.0008
February, 1980				
Akita, AKITA	30	66.18	0.014 ± 0.0010	0.023 ± 0.0012
Niigata, NIIGATA	30	58.73	0.013 ± 0.0010	0.024 ± 0.0012
Kanazawa, ISHIKAWA	27	120.5	0.033 ± 0.0015	0.049 ± 0.0017
Nagano, NAGANO	30	11.0	0.003 ± 0.0006	0.005 ± 0.0008
Osaka, OSAKA	30	45	0.004 ± 0.0007	0.006 ± 0.0008
Okayama, OKAYAMA	30	28.8	0.001 ± 0.0006	0.002 ± 0.0007
Yamaguchi, YAMAGUCHI	29	38.0	0.008 ± 0.0008	0.010 ± 0.0009
Kochi, KOCHI	30	21.9	0.006 ± 0.0008	0.005 ± 0.0007
Kagoshima, KAGOSHIMA	32	70.3	0.001 ± 0.0006	0.003 ± 0.0007
March, 1980				
Akita, AKITA	32	85.96	0.014 ± 0.0011	0.022 ± 0.0012
Niigata, NIIGATA	32	70.61	0.020 ± 0.0011	0.036 ± 0.0015
Kanazawa, ISHIKAWA	27	129	0.014 ± 0.0010	0.022 ± 0.0012
Nagano, NAGANO	32	68.0	0.009 ± 0.0009	0.014 ± 0.0010
Osaka, OSAKA	31	124	0.010 ± 0.0009	0.015 ± 0.0010
Okayama, OKAYAMA	32	92.8	0.010 ± 0.0010	0.013 ± 0.0010
Yamaguchi, YAMAGUCHI	30	134.5	0.016 ± 0.0012	0.022 ± 0.0013
Kochi, KOCHI	32	155.3	0.020 ± 0.0012	0.025 ± 0.0012
Kagoshima, KAGOSHIMA	30	223	0.005 ± 0.0007	0.006 ± 0.0008
April, 1980				
Akita, AKITA	31	171.78	0.023 ± 0.0013	0.038 ± 0.0015
Niigata, NIIGATA	31	106.45	0.021 ± 0.0012	0.026 ± 0.0013
Kanazawa, ISHIKAWA	37	160.5	0.027 ± 0.0014	0.045 ± 0.0017
Nagano, NAGANO	31	58.5	0.005 ± 0.0007	0.011 ± 0.0009
Osaka, OSAKA	31	242	0.018 ± 0.0012	0.027 ± 0.0014

Location	Duration (Days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Okayama, OKAYAMA	30	73.3	0.008 ± 0.0009	0.013 ± 0.0010
Yamaguchi, YAMAGUCHI	32	140.5	0.019 ± 0.0012	0.036 ± 0.0015
Kochi, KOCHI	30	242.7	0.036 ± 0.0015	0.056 ± 0.0018
Kagoshima, KAGOSHIMA	30	187.5	0.006 ± 0.0008	0.008 ± 0.0009
May, 1980				
Akita, AKITA	32	157.98	0.022 ± 0.0013	0.040 ± 0.0016
Niigata, NIIGATA	33	118.77	0.012 ± 0.0011	0.014 ± 0.0010
Kanazawa, ISHIKAWA	33	185.5	0.023 ± 0.0014	0.042 ± 0.0016
Nagano, NAGANO	33	95.5	0.013 ± 0.0010	0.021 ± 0.0012
Osaka, OSAKA	33	259	0.019 ± 0.0012	0.031 ± 0.0013
Okayama, OKAYAMA	32	171.7	0.010 ± 0.0009	0.017 ± 0.0011
Yamaguchi, YAMAGUCHI	33	240.0	0.017 ± 0.0013	0.025 ± 0.0013
Kochi, KOCHI	33	445.3	0.042 ± 0.0026	0.055 ± 0.0018
Kagoshima, KAGOSHIMA	33	438.5	0.004 ± 0.0008	0.016 ± 0.0011
June, 1980				
Akita, AKITA	31	143.81	0.012 ± 0.0010	0.016 ± 0.0011
Niigata, NIIGATA	30	83.07	0.007 ± 0.0009	0.013 ± 0.0010
Kanazawa, ISHIKAWA	30	71.5	0.009 ± 0.0010	0.011 ± 0.0010
Nagano, NAGANO	30	42.0	0.007 ± 0.0009	0.009 ± 0.0009
Osaka, OSAKA	30	115	0.014 ± 0.0011	0.023 ± 0.0012
Okayama, OKAYAMA	31	119.5	0.010 ± 0.0010	0.017 ± 0.0011
Yamaguchi, YAMAGUCHI	30	157.00	0.014 ± 0.0011	0.017 ± 0.0011
Kochi, KOCHI	30	306.0	0.018 ± 0.0012	0.024 ± 0.0013
Kagoshima, KAGOSHIMA	31	324.5	0.013 ± 0.0010	0.023 ± 0.0012
July, 1980				
Akita, AKITA	32	186.14	0.010 ± 0.0011	0.018 ± 0.0011
Kanazawa, ISHIKAWA	31	386.5	0.022 ± 0.0017	0.036 ± 0.0016
Osaka, OSAKA	32	267	0.012 ± 0.0012	0.017 ± 0.0012

Figure (1)-2 Sampling Locations of Rain and dry fallout

1. Akita
2. Niigata
3. Kanazawa
4. Nagano
5. Osaka
6. Okayama
7. Yamaguchi
8. Kochi
9. Kagoshima



(2) Strontium-90 and Cesium-137 in Airborne dust (from Oct. 1979 to Jun. 1980)

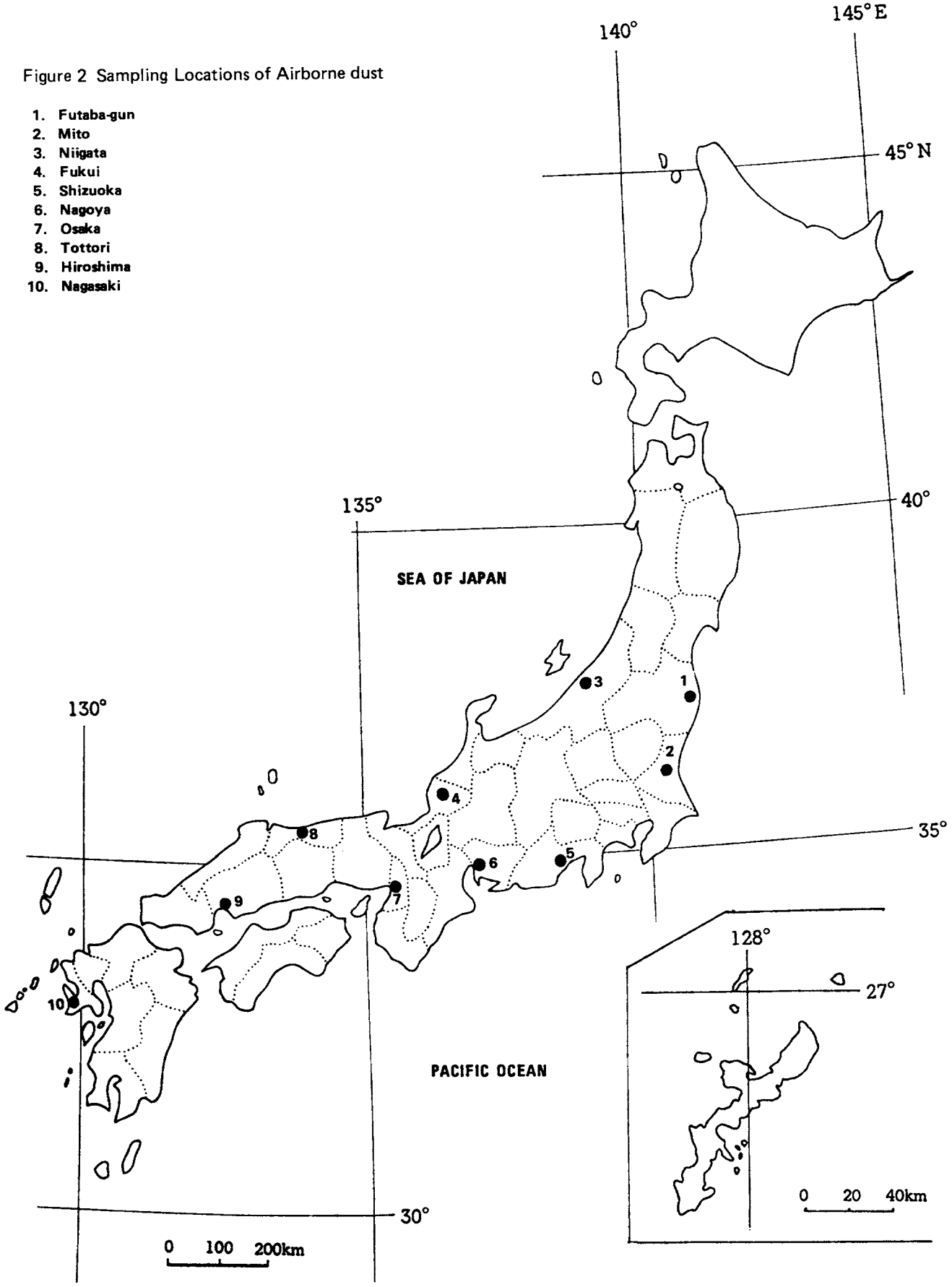
– continued from No. 52 of this publication –

Table 2: Strontium-90 and Cesium-137 in Air-borne dust

Location	Sampling period	Absorption volume (m^3)	^{90}Sr (10^{-3}pCi/m^3)	^{137}Cs (10^{-3}pCi/m^3)
October ~ December 1979				
Futaba-gun, FUKUSHIMA	10 ~ 12	9,626	0.1 ± 0.03	0.1 ± 0.03
Mito, IBARAGI	10 ~ 12	11,232	0.1 ± 0.03	0.1 ± 0.02
Niigata, NIIGATA	10 ~ 12	11,120.2	0.2 ± 0.03	0.3 ± 0.03
Fukui, FUKUI	10 ~ 12	22,073	0.2 ± 0.02	0.3 ± 0.02
Shizuoka, SHIZUOKA	10 ~ 12	18,448	0.1 ± 0.02	0.1 ± 0.02
Nagoya, AICHI	10 ~ 12	13,614	0.1 ± 0.03	0.1 ± 0.02
Osaka, OSAKA	10 ~ 12	9,072	0.1 ± 0.04	0.3 ± 0.03
Tottori, TOTTORI	10 ~ 12	10,628.6	0.2 ± 0.03	0.3 ± 0.03
Hiroshima, HIROSHIMA	10 ~ 12	10,800	0.1 ± 0.03	0.2 ± 0.03
Nagasaki, NAGASAKI	10 ~ 12	10,088	0.2 ± 0.03	0.3 ± 0.03
January ~ March 1980				
Futaba-gun, FUKUSHIMA	1 ~ 3	14,274	0.2 ± 0.03	0.4 ± 0.03
Mito, IBARAGI	1 ~ 3	15,552	0.01± 0.02	0.05± 0.02
Niigata, NIIGATA	1 ~ 3	9,902.7	0.3 ± 0.04	0.4 ± 0.04
Fukui, FUKUI	2 ~ 3	15,778	0.3 ± 0.03	0.5 ± 0.03
Shizuoka, SHIZUOKA	1 ~ 3	17,570	0.1 ± 0.02	0.1 ± 0.02
Nagoya, AICHI	1 ~ 3	9,540	0.2 ± 0.04	0.2 ± 0.03
Osaka, OSAKA	1 ~ 3	9,072	0.1 ± 0.04	0.3 ± 0.03
Tottori, TOTTORI	1 ~ 3	10,823.0	0.2 ± 0.04	0.3 ± 0.03
Hiroshima, HIROSHIMA	1 ~ 3	10,800	0.2 ± 0.04	0.4 ± 0.03
Nagasaki, NAGASAKI	1 ~ 3	10,917	0.2 ± 0.03	0.5 ± 0.03
April ~ June 1980				
Futaba-gun, FUKUSHIMA	4 ~ 6	12,284	0.4 ± 0.04	0.6 ± 0.03
Mito, IBARAGI	4 ~ 6	20,736	0.1 ± 0.02	0.2 ± 0.02
Niigata, NIIGATA	4 ~ 6	9,429	0.6 ± 0.05	0.9 ± 0.05
Fukui, FUKUI	4 ~ 6	27,108	0.3 ± 0.02	0.6 ± 0.02
Nagoya, AICHI	4 ~ 6	10,459	0.4 ± 0.05	0.7 ± 0.04
Osaka, OSAKA	4 ~ 6	8,424	0.3 ± 0.05	0.4 ± 0.04
Tottori, TOTTORI	4 ~ 6	11,836.8	0.4 ± 0.04	0.7 ± 0.04
Hiroshima, HIROSHIMA	4 ~ 6	10,800	0.4 ± 0.04	0.5 ± 0.03

Figure 2 Sampling Locations of Airborne dust

1. Futaba-gun
2. Mito
3. Niigata
4. Fukui
5. Shizuoka
6. Nagoya
7. Osaka
8. Tottori
9. Hiroshima
10. Nagasaki



(3) Strontium-90 and Cesium-137 in Service water (from Dec. 1979 to Jun. 1980)

– continued from No. 52 of this publication –

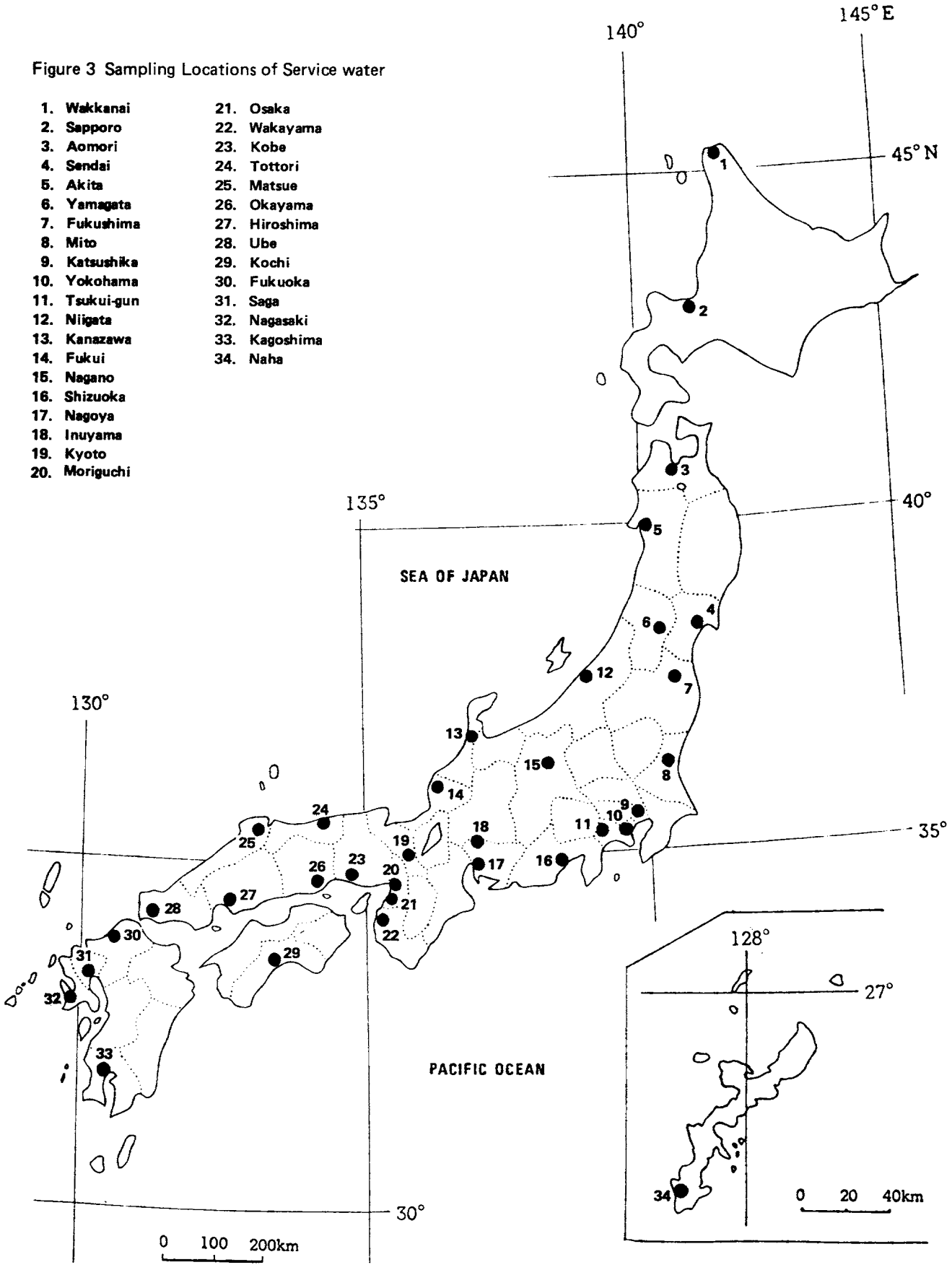
Table 3: Stonrtium-90 and Cesium-137 in Service water

Location	pH	^{90}Sr (pCi/ℓ)	^{137}Cs (pCi/ℓ)
(Source water)			
December, 1979			
Katsushika, TOKYO	7.2	0.09 ± 0.006	0.05 ± 0.005
Inuyama, AICHI	6.8	0.08 ± 0.006	0.003± 0.003
Moriguchi, OSAKA	7.5	0.23 ± 0.008	0.02 ± 0.003
Fukuoka, FUKUOKA	7.5	0.10 ± 0.006	0.01 ± 0.003
January, 1980			
Sapporo, HOKKAIDO	6.9	0.11 ± 0.006	0.01 ± 0.003
Kyoto, KYOTO	7.5	0.27 ± 0.010	0.01 ± 0.003
June, 1980			
Tsukui-gun, KANAGAWA	7.0	0.03 ± 0.004	0.004± 0.003
Inuyama, AICHI	7.0	0.12 ± 0.007	0.003± 0.003
Moriguchi, OSAKA	7.0	0.25 ± 0.009	0.01 ± 0.003
(Tap water)			
December, 1979			
Wakkanai, HOKKAIDO	6.6	0.55 ± 0.014	0.01 ± 0.003
Aomori, AOMORI	7.2	0.05 ± 0.005	0.003± 0.003
Akita, AKITA	6.5	0.17 ± 0.009	0.01 ± 0.003
Fukushima, FUKUSHIMA		0.11 ± 0.006	0.01 ± 0.003
Katsushika, TOKYO	7.1	0.09 ± 0.006	0.01 ± 0.004
Shizuoka, SHIZUOKA	7.2	0.001± 0.003	0.002± 0.003
Nagoya, AICHI	6.4	0.09 ± 0.006	0.002± 0.003
Osaka, OSAKA	6.6	0.14 ± 0.007	0.002± 0.003
Tottori, TOTTORI	7.5	0.10 ± 0.006	0.004± 0.003
Matsue, SHIMANE	6.5	0.19 ± 0.008	0.01 ± 0.003
Okayama, OKAYAMA	6.8	0.03 ± 0.004	0.01 ± 0.003
Hiroshima, HIROSHIMA	7.2	0.12 ± 0.007	0.01 ± 0.003
Ube, YAMAGUCHI	6.0	0.09 ± 0.006	0.001± 0.003
Kochi, KOCHI	7.3	0.08 ± 0.005	0.002± 0.003
Fukuoka, FUKUOKA	6.65	0.11 ± 0.006	0.003± 0.003
Saga, SAGA	6.97	0.08 ± 0.005	0.005± 0.003
Nagasaki, NAGASAKI		0.07 ± 0.005	0.01 ± 0.003
January, 1980			
Sendai, MIYAGI	7.2	0.09 ± 0.006	0.0 ± 0.003
Fukui, FUKUI	6.7	0.01 ± 0.002	0.001± 0.003

Location	pH	^{90}Sr (pCi/ℓ)	^{137}Cs (pCi/ℓ)
Kyoto, KYOTO	6.9	0.28 ±0.009	0.01 ±0.003
February, 1980			
Wakayama, WAKAYAMA		0.08 ±0.006	0.005±0.003
Kagoshima, KAGOSHIMA	6.7	0.003±0.002	0.001±0.003
Naha, OKINAWA	7.5	0.14 ±0.007	0.004±0.003
June, 1980			
Akita, AKITA	6.85	0.18 ±0.008	0.01 ±0.003
Yamagata, YAMAGATA	7.0	0.10 ±0.006	0.01 ±0.004
Mito, IBARAGI	6.2	0.07 ±0.005	0.01 ±0.003
Yokohama, KANAGAWA	7.0	0.04 ±0.004	0.003±0.003
Niigata, NIIGATA	7.38	0.18 ±0.008	0.01 ±0.003
Kanazawa, ISHIKAWA	6.5	0.16 ±0.007	0.003±0.003
Fukui, FUKUI	6.8	0.01 ±0.003	0.004±0.003
Nagano, NAGANO	7.4	0.05 ±0.004	0.005±0.003
Shizuoka, SHIZUOKA	7.1	0.002±0.003	0.01 ±0.003
Nagoya, AICHI	6.1	0.09 ±0.006	0.01 ±0.003
Osaka, OSAKA	7.0	0.16 ±0.008	0.01 ±0.003
Kobe, HYOGO	6.4	0.19 ±0.009	0.01 ±0.003
Wakayama, WAKAYAMA	7.6	0.08 ±0.006	0.01 ±0.003
Okayama, OKAYAMA	6.6	0.04 ±0.005	0.00 ±0.003
Kochi, KOCHI	7.3	0.07 ±0.006	0.004±0.003

Figure 3 Sampling Locations of Service water

1. Wakkanai
2. Sapporo
3. Aomori
4. Sendai
5. Akita
6. Yamagata
7. Fukushima
8. Mito
9. Katsushika
10. Yokohama
11. Tsukui-gun
12. Niigata
13. Kanazawa
14. Fukui
15. Nagano
16. Shizuoka
17. Nagoya
18. Inuyama
19. Kyoto
20. Moriguchi
21. Osaka
22. Wakayama
23. Kobe
24. Tottori
25. Matsue
26. Okayama
27. Hiroshima
28. Ube
29. Kochi
30. Fukuoka
31. Saga
32. Nagasaki
33. Kagoshima
34. Naha



(4) Strontium-90 and Cesium-137 in Freshwater (from Nov. 1979 to May 1980)

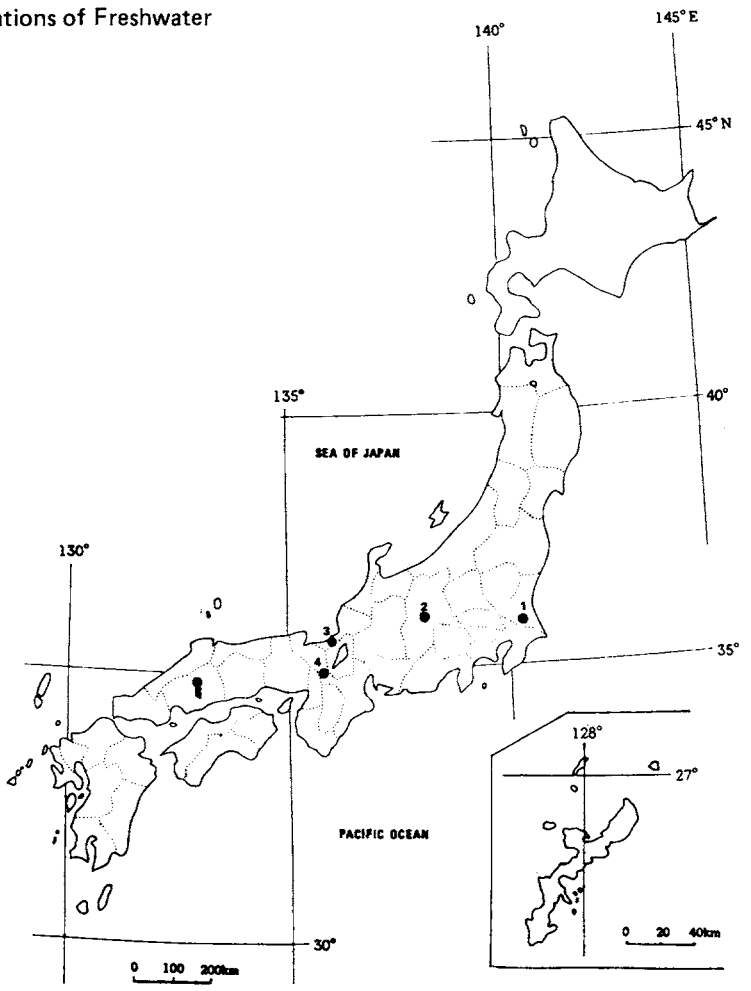
– continued from No. 52 of this publication –

Table 4: Strontium-90 and Cesium-137 in Freshwater

Location	pH	^{90}Sr (pCi/ℓ)	^{137}Cs (pCi/ℓ)
November, 1979			
Shobara, HIROSHIMA	7.4	0.11 ± 0.007	0.003± 0.003
December, 1979			
Mikata-lake, FUKUI	7.6	0.19 ± 0.009	0.03 ± 0.004
Suwa-lake, NAGANO	7.4	0.05 ± 0.005	0.01 ± 0.004
Uji, KYOTO	6.26	0.004± 0.003	0.00 ± 0.003
May, 1980			
Kasumigaura, IBARAGI	9.0	0.27 ± 0.009	0.05 ± 0.005

Figure 4 Sampling Locations of Freshwater

1. **Kasumigaura**
2. **Suwa-lake**
3. **Mikata-lake**
4. **Uji**
5. **Shobara**



(5) Strontium-90 and Cesium-137 in Total diet (from Aug. 1979 to Jul. 1980)

– continued from No. 52 of this publication –

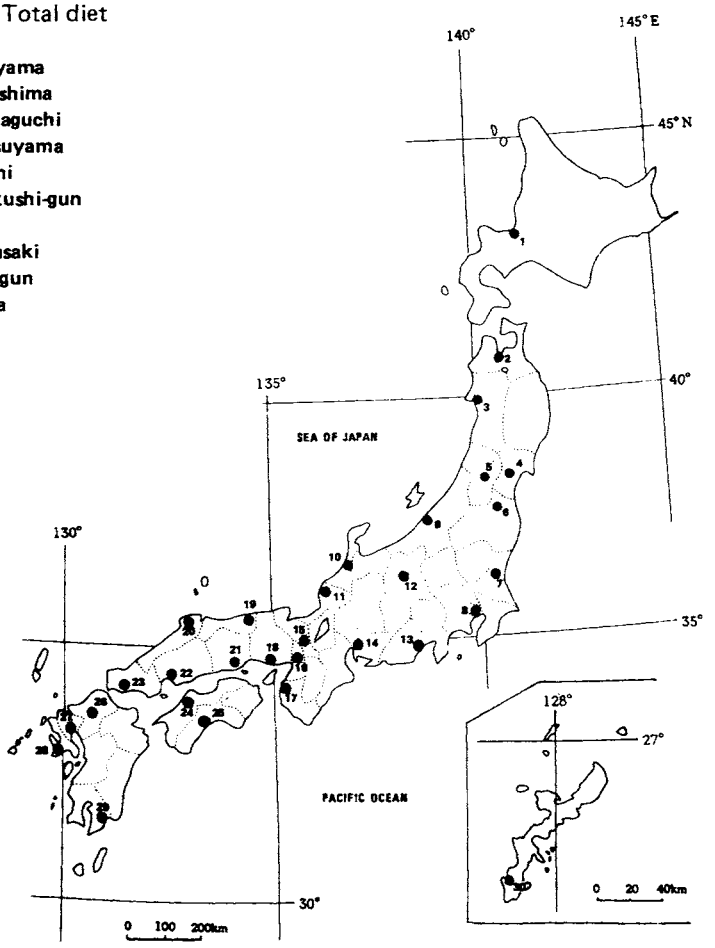
Table 5: Strontium-90 and Cesium-137 in Total diet

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
August, 1979							
Naha, OKINAWA	12.7	491	1,560	1.4 ± 0.25	2.9 ± 0.51	2.3 ± 0.23	1.5 ± 0.15
November, 1979							
Akita, AKITA	15.2	333	1,830	3.1 ± 0.34	9.2 ± 1.0	5.1 ± 0.33	2.8 ± 0.18
Fukushima, FUKUSHIMA	19.7	822	2,850	4.7 ± 0.45	5.7 ± 0.55	8.8 ± 0.48	3.1 ± 0.17
Fukui, FUKUI	13.1	304	1,740	3.6 ± 0.33	12 ± 1.1	2.5 ± 0.24	1.4 ± 0.14
Neyagawa, OSAKA	16.4	421	2,360	3.0 ± 0.38	7.2 ± 0.90	4.4 ± 0.33	1.9 ± 0.14
Matsue, SHIMANE	21.5	1,000	2,640	4.2 ± 0.49	4.2 ± 0.49	4.3 ± 0.39	1.6 ± 0.15
December, 1979							
Sapporo, HOKKAIDO	22.3	1,010	2,360	3.3 ± 0.45	3.2 ± 0.45	4.6 ± 0.42	1.9 ± 0.18
Aomori, AOMORI	19.7	635	2,350	4.0 ± 0.42	6.3 ± 0.67	6.9 ± 0.45	2.9 ± 0.19
Shinjuku, TOKYO	18.9	423	2,010	4.2 ± 0.44	10 ± 1.0	3.9 ± 0.34	1.9 ± 0.17
Kanazawa, ISHIKAWA	19.0	445	2,290	3.8 ± 0.41	8.6 ± 0.91	6.2 ± 0.40	2.7 ± 0.18
Kyoto, KYOTO	16.5	947	2,410	3.2 ± 0.38	3.3 ± 0.40	4.9 ± 0.36	2.0 ± 0.15
Kakogawa, HYOGO	14.0	705	1,780	3.5 ± 0.33	5.0 ± 0.47	2.9 ± 0.26	1.6 ± 0.15
Yamaguchi, YAMAGUCHI	26.7	807	3,110	6.1 ± 0.48	7.5 ± 0.60	4.4 ± 0.34	1.4 ± 0.11
Matsuyama, EHIME	15.3	777	2,530	3.6 ± 0.34	4.6 ± 0.44	3.1 ± 0.28	1.2 ± 0.11
Nagasaki, NAGASAKI	12.1	517	1,570	3.1 ± 0.30	5.9 ± 0.59	2.2 ± 0.22	1.4 ± 0.14
January, 1980							
Hiroshima, HIROSHIMA	18.0	625	1,950	2.1 ± 0.43	3.4 ± 0.69	2.8 ± 0.3	1.5 ± 0.20
February, 1980							
Naha, OKINAWA	17.7	1,440	1,660	4.4 ± 0.44	3.1 ± 0.31	1.8 ± 0.28	1.1 ± 0.17
June, 1980							
Sapporo, HOKKAIDO	16.6	502	2,130	3.7 ± 0.37	7.4 ± 0.73	4.4 ± 0.31	2.1 ± 0.15
Aomori, AOMORI	21.5	977	2,890	4.5 ± 0.46	4.6 ± 0.47	4.1 ± 0.37	1.4 ± 0.13
Sendai, MIYAGI	14.1	418	1,500	1.8 ± 0.27	4.3 ± 0.64	1.6 ± 0.22	1.1 ± 0.14
Akita, AKITA	14.3	600	1,720	5.1 ± 0.40	8.6 ± 0.66	3.9 ± 0.27	2.3 ± 0.16
Mito, IBARAGI	24.1	2,060	3,350	3.7 ± 0.45	1.8 ± 0.22	3.3 ± 0.38	1.0 ± 0.11
Shinjuku, TOKYO	18.8	528	2,010	2.4 ± 0.35	4.6 ± 0.67	3.3 ± 0.30	1.6 ± 0.15
Nishikanbara-gun, NIIGATA	21.8	544	2,800	3.9 ± 0.53	7.2 ± 0.98	2.7 ± 0.36	1.0 ± 0.13
Kanazawa, ISHIKAWA	22.2	781	2,680	4.1 ± 0.53	5.3 ± 0.68	5.9 ± 0.45	2.2 ± 0.17
Fukui, FUKUI	14.2	519	1,900	2.9 ± 0.32	5.5 ± 0.61	1.9 ± 0.22	1.0 ± 0.12
Nagano, NAGANO	17.5	625	2,250	3.5 ± 0.37	5.6 ± 0.60	3.3 ± 0.29	1.4 ± 0.13

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
Shizuoka, SHIZUOKA	16.4	682	2,570	3.6 ± 0.35	5.3 ± 0.51	4.9 ± 0.34	1.9 ± 0.13
Nagoya, AICHI	17.0	697	2,430	4.3 ± 0.41	6.2 ± 0.58	4.5 ± 0.32	1.9 ± 0.13
Neyagawa, OSAKA	14.5	423	1,860	2.2 ± 0.29	5.2 ± 0.70	2.8 ± 0.24	1.5 ± 0.13
Kakogawa, HYOGO	13.5	688	1,700	2.6 ± 0.25	3.7 ± 0.36	2.5 ± 0.24	1.5 ± 0.14
Wakayama, WAKAYAMA	34.7	947	3,690	6.4 ± 0.52	6.8 ± 0.55	3.8 ± 0.37	1.0 ± 0.10
Iwami-gun, TOTTORI	14.0	496	1,800	3.8 ± 0.47	7.7 ± 0.94	1.7 ± 0.30	0.9 ± 0.17
Okayama, OKAYAMA	17.9	603	2,250	4.5 ± 0.40	7.5 ± 0.66	3.3 ± 0.30	1.5 ± 0.14
Yamaguchi, YAMAGUCHI	11.5	242	1,520	2.2 ± 0.25	9.2 ± 1.0	1.1 ± 0.16	0.7 ± 0.11
Matsuyama, EHIME	13.2	485	1,920	2.0 ± 0.25	4.2 ± 0.51	1.9 ± 0.20	1.0 ± 0.11
Kochi, KOCHI	12.8	569	2,150	3.9 ± 0.38	6.9 ± 0.67	2.0 ± 0.24	0.9 ± 0.11
Tsukushi-gun, FUKUOKA	16.6	587	2,190	2.1 ± 0.34	3.5 ± 0.58	2.5 ± 0.28	1.1 ± 0.13
Saga, SAGA	16.8	976	1,680	2.0 ± 0.35	2.0 ± 0.36	2.7 ± 0.29	1.6 ± 0.18
Soo-gun, KAGOSHIMA	13.6	447	2,150	2.6 ± 0.32	5.8 ± 0.71	2.9 ± 0.24	1.3 ± 0.11
July, 1980							
Yamagata, YAMAGATA	18.9	694	2,260	2.6 ± 0.45	3.8 ± 0.65	2.0 ± 0.35	0.9 ± 0.15

Figure 5 Sampling Locations of Total diet

1. Sapporo
2. Aomori
3. Akita
4. Sendai
5. Yamagata
6. Fukushima
7. Mito
8. Shinjuku
9. Nishikanbara-gun
10. Kanazawa
11. Fukui
12. Nagano
13. Shizuoka
14. Nagoya
15. Kyoto
16. Neyagawa
17. Wakayama
18. Kakogawa
19. Iwami-gun
20. Matsue
21. Okayama
22. Hiroshima
23. Yamaguchi
24. Matsuyama
25. Kochi
26. Tsukushi-gun
27. Saga
28. Nagasaki
29. Soo-gun
30 Naha



(6) Strontium-90 and Cesium-137 in Rice (from Oct. 1979 to Jan. 1980)

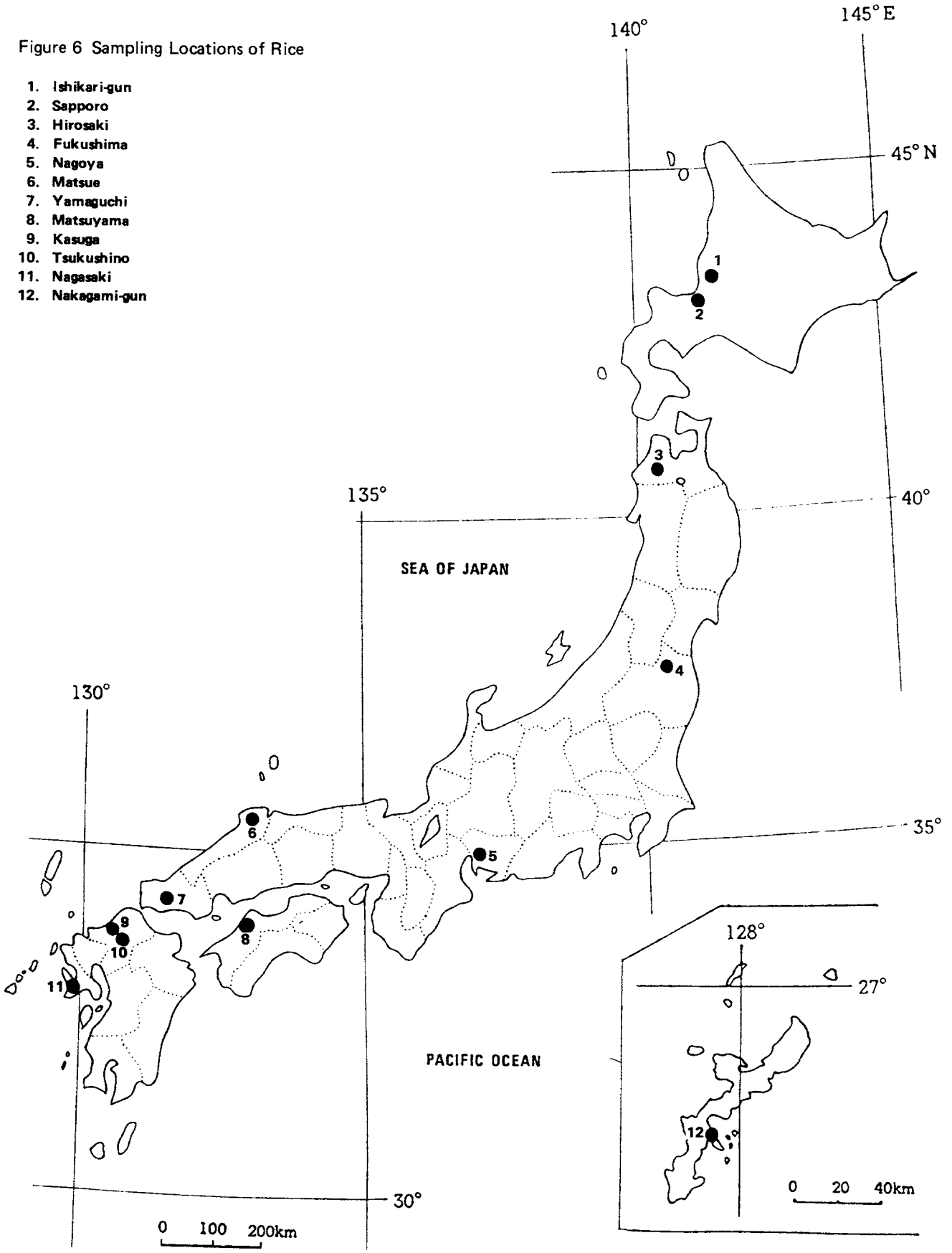
– continued from No. 52 of this publication –

Table 6: Strontium-90 and Cesium-137 in Rice

Location	Component			^{90}Sr		^{137}Cs	
	Ash (%)	Ca (%)	K (%)	pCi/kg	S.U.	pCi/kg	C.U.
October, 1979							
Matsuyama, EHIME	0.397	0.0045	0.099	0.2 ± 0.20	4.4 ± 4.5	1.3 ± 0.23	1.3 ± 0.24
November, 1979							
Ishikari-gun, HOKKAIDO	0.496	0.0041	0.12	0.5 ± 0.26	11 ± 6.3	1.7 ± 0.29	1.5 ± 0.26
Sapporo, HOKKAIDO	0.432	0.0050	0.099	0.6 ± 0.24	12 ± 4.7	2.3 ± 0.27	2.3 ± 0.27
Fukushima, FUKUSHIMA	0.468	0.0050	0.11	0.1 ± 0.31	1.4 ± 6.1	1.2 ± 0.32	1.1 ± 0.28
December, 1979							
Nagoya, AICHI	0.421	0.0059	0.091	0.7 ± 0.25	12 ± 4.2	1.5 ± 0.26	1.7 ± 0.28
Matsue, SHIMANE	0.451	0.0053	0.10	0.5 ± 0.27	9.8 ± 5.1	9.5 ± 0.47	9.5 ± 0.47
Yamaguchi, YAMAGUCHI	0.536	0.0052	0.13	0.9 ± 0.32	17 ± 6.3	0.4 ± 0.25	0.3 ± 0.19
Kasuga, FUKUOKA	0.570	0.0059	0.12	0.2 ± 0.36	2.9 ± 6.1	5.5 ± 0.47	4.7 ± 0.40
Tukushino, FUKUOKA	0.411	0.0045	0.088	0.1 ± 0.23	1.4 ± 5.1	1.9 ± 0.26	2.2 ± 0.29
Nakagami-gun, OKINAWA	0.437	0.0052	0.10	0.3 ± 0.25	6.2 ± 4.8	3.7 ± 0.34	3.6 ± 0.33
January, 1980							
Hirosaki, AOMORI	0.374	0.0059	0.063	1.4 ± 0.57	23 ± 9.6	3.1 ± 0.61	5.0 ± 0.97
Nagasaki, NAGASAKI	0.416	0.0044	0.085	0.3 ± 0.24	6.5 ± 5.5	3.1 ± 0.31	3.7 ± 0.36

Figure 6 Sampling Locations of Rice

1. Ishikari-gun
2. Sapporo
3. Hirosaki
4. Fukushima
5. Nagoya
6. Matsue
7. Yamaguchi
8. Matsuyama
9. Kasuga
10. Tsukushino
11. Nagasaki
12. Nakagami-gun



(7)-1 Strontium-90 and Cesium-137 in Milk (producing districts for WHO program)

(from Aug. 1979 to Jun. 1980)

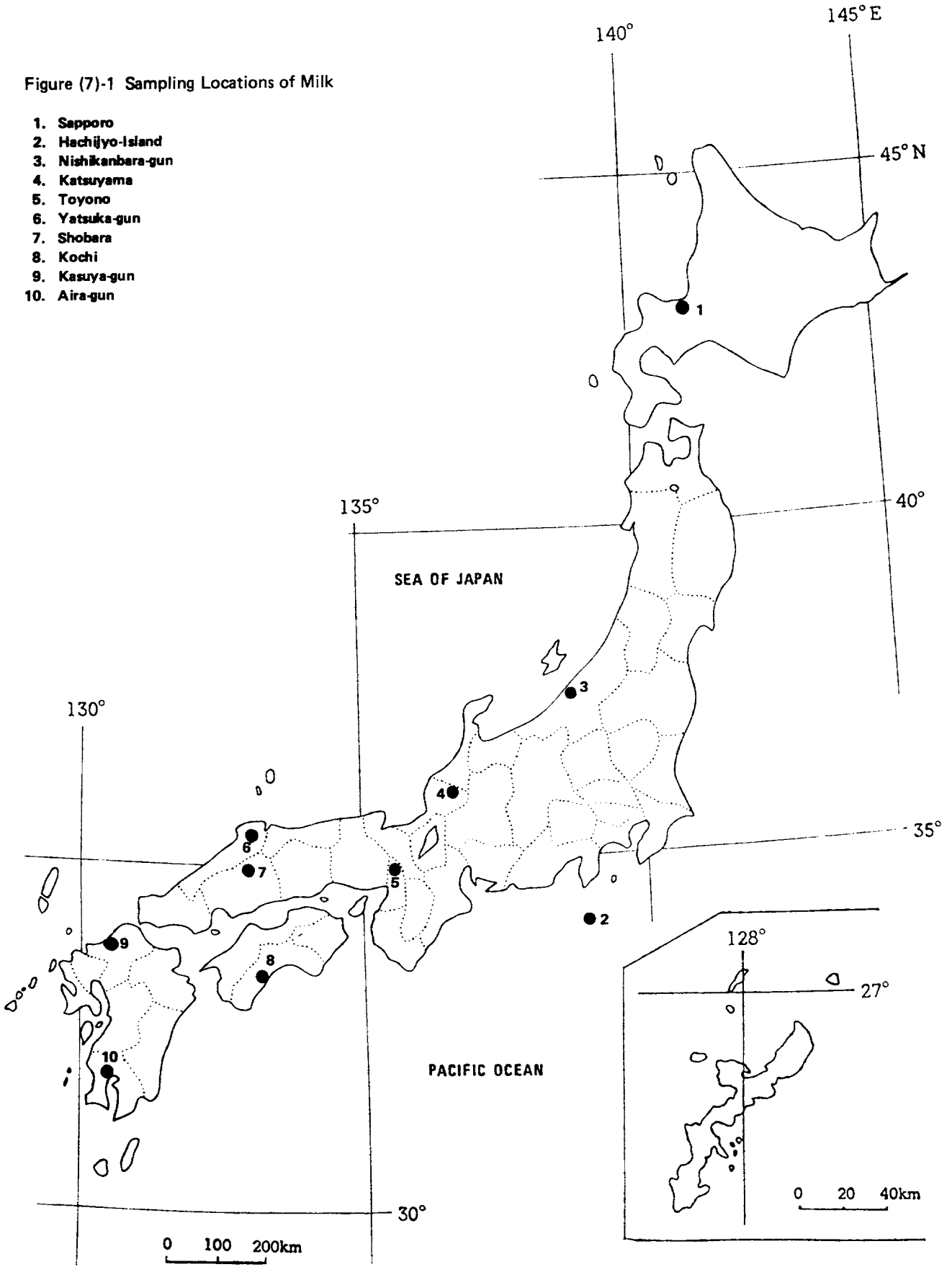
– continued from No. 52 of this publication –

Table (7)-1: Strontium-90 and Cesium-137 in Milk

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
August, 1979							
Hachijyo-Island, TOKYO	7.18	1.17	1.53	5.6 ± 0.39	4.8 ± 0.34	32 ± 0.7	21 ± 0.5
November, 1979							
Katsuyama, FUKUI	7.05	1.07	1.63	2.7 ± 0.28	2.5 ± 0.26	7.8 ± 0.37	4.8 ± 0.23
Shobara, HIROSHIMA	7.33	1.12	1.67	1.2 ± 0.22	1.1 ± 0.20	2.2 ± 0.25	1.3 ± 0.15
Kasuya-gun, FUKUOKA	7.55	1.20	1.66	0.8 ± 0.22	0.7 ± 0.18	1.9 ± 0.25	1.1 ± 0.15
December, 1979							
Sapporo, HOKKAIDO	7.21	1.07	1.84	2.6 ± 0.28	2.4 ± 0.26	4.8 ± 0.31	2.6 ± 0.17
Yatsuka-gun, SHIMANE	7.51	1.23	1.66	2.1 ± 0.29	1.7 ± 0.23	3.4 ± 0.28	2.1 ± 0.17
January, 1980							
Katsuyama, FUKUI	7.65	1.17	1.74	2.8 ± 0.30	2.4 ± 0.26	7.2 ± 0.38	4.1 ± 0.22
Toyono-gun, OSAKA	7.52	1.16	1.66	1.4 ± 0.28	1.2 ± 0.24	2.1 ± 0.24	1.3 ± 0.14
February, 1980							
Sapporo, HOKKAIDO	6.62	1.08	1.42	2.3 ± 0.28	2.1 ± 0.26	6.3 ± 0.33	4.4 ± 0.23
Hachijyo-Island, TOKYO	7.44	1.15	1.63	5.9 ± 0.39	5.1 ± 0.34	29 ± 0.7	18 ± 0.4
Nishikanbara-gun, NIIGATA	7.70	1.18	1.51	1.2 ± 0.23	1.0 ± 0.20	1.8 ± 0.25	1.2 ± 0.16
Shobara, HIROSHIMA	8.14	1.26	1.86	1.3 ± 0.26	1.1 ± 0.21	2.3 ± 0.27	1.2 ± 0.14
Kochi, KOCHI	7.50	1.12	1.35	2.7 ± 0.29	2.4 ± 0.26	1.7 ± 0.24	1.2 ± 0.18
Kasuya-gun, FUKUOKA	7.55	1.18	1.73	0.9 ± 0.22	0.7 ± 0.19	1.1 ± 0.21	0.7 ± 0.12
March, 1980							
Aira-gun, KAGOSHIMA	7.22	1.10	1.60	1.6 ± 0.26	1.4 ± 0.23	2.4 ± 0.23	1.5 ± 0.15
April, 1980							
Toyono-gun, OSAKA	7.36	1.11	1.64	1.2 ± 0.27	1.1 ± 0.24	1.6 ± 0.23	1.0 ± 0.14
May, 1980							
Hachijyo-Island, TOKYO	7.25	1.05	1.65	6.7 ± 0.40	6.3 ± 0.38	23 ± 0.6	14 ± 0.4
Kochi, KOCHI	7.42	1.10	1.37	3.0 ± 0.30	2.7 ± 0.27	1.2 ± 0.21	0.9 ± 0.15
Kasuya-gun, FUKUOKA	6.97	1.08	1.59	0.9 ± 0.22	0.8 ± 0.20	1.1 ± 0.21	0.7 ± 0.13
Aira-gun, KAGOSHIMA	6.90	1.06	1.56	2.1 ± 0.25	1.9 ± 0.24	2.7 ± 0.24	1.7 ± 0.16
June, 1980							
Sapporo, HOKKAIDO	7.51	1.22	1.79	2.2 ± 0.29	1.8 ± 0.24	4.1 ± 0.30	2.3 ± 0.17
Katsuyama, FUKUI	7.05	1.01	1.66	2.1 ± 0.34	2.1 ± 0.33	4.3 ± 0.29	2.6 ± 0.18

Figure (7)-1 Sampling Locations of Milk

1. Sapporo
2. Hachijyo-Island
3. Nishikanbara-gun
4. Katsuyama
5. Toyono
6. Yatsuka-gun
7. Shobara
8. Kochi
9. Kasuya-gun
10. Aira-gun



(7)-2 Strontium-90 and Cesium-137 in Milk (producing districts for domestic program)

(Feb. 1980)

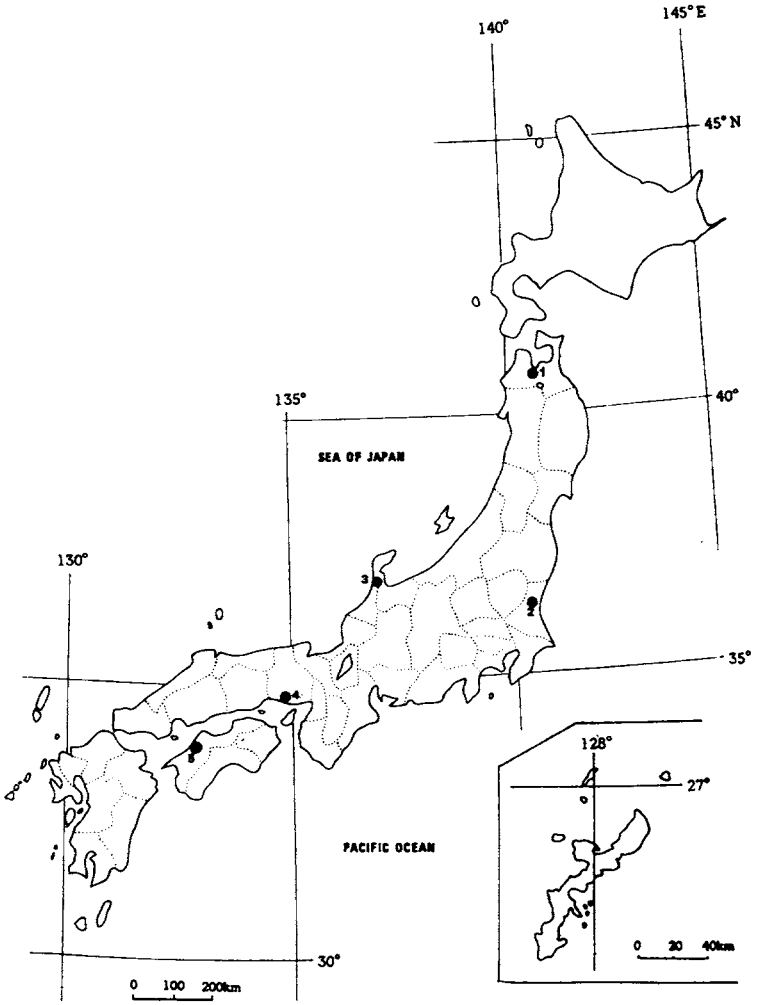
— continued from No.52 of this publication—

Table (7)-2: Strontium-90 and Cesium-137 in Milk

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
(Production)							
February, 1980							
Aomori, AOMORI	7.18	1.08	1.57	2.6 ± 0.29	2.4 ± 0.27	3.1 ± 0.27	2.0 ± 0.17
Mito, IBARAGI	7.66	1.25	1.67	2.0 ± 0.29	1.6 ± 0.23	2.0 ± 0.24	1.2 ± 0.15
Hakui-gun, ISHIKAWA	7.16	1.13	1.52	3.2 ± 0.31	2.8 ± 0.27	5.7 ± 0.34	3.8 ± 0.22
Himeji, HYOGO	7.61	1.20	1.61	1.5 ± 0.29	1.2 ± 0.25	1.2 ± 0.21	0.7 ± 0.13
Matsuyama, EHIME	7.32	1.09	1.63	1.3 ± 0.24	1.2 ± 0.22	1.3 ± 0.23	0.8 ± 0.14

Figure (7)-2 Sampling Locations of Milk

1. **Aomori**
2. **Mito**
3. **Hakui-gun**
4. **Himeji**
5. **Matsuyama**



(7)-3 Strontium-90 and Cesium-137 in Milk (consuming districts)

(from Aug. 1979 to May 1980)

– continued from No. 52 of this publication –

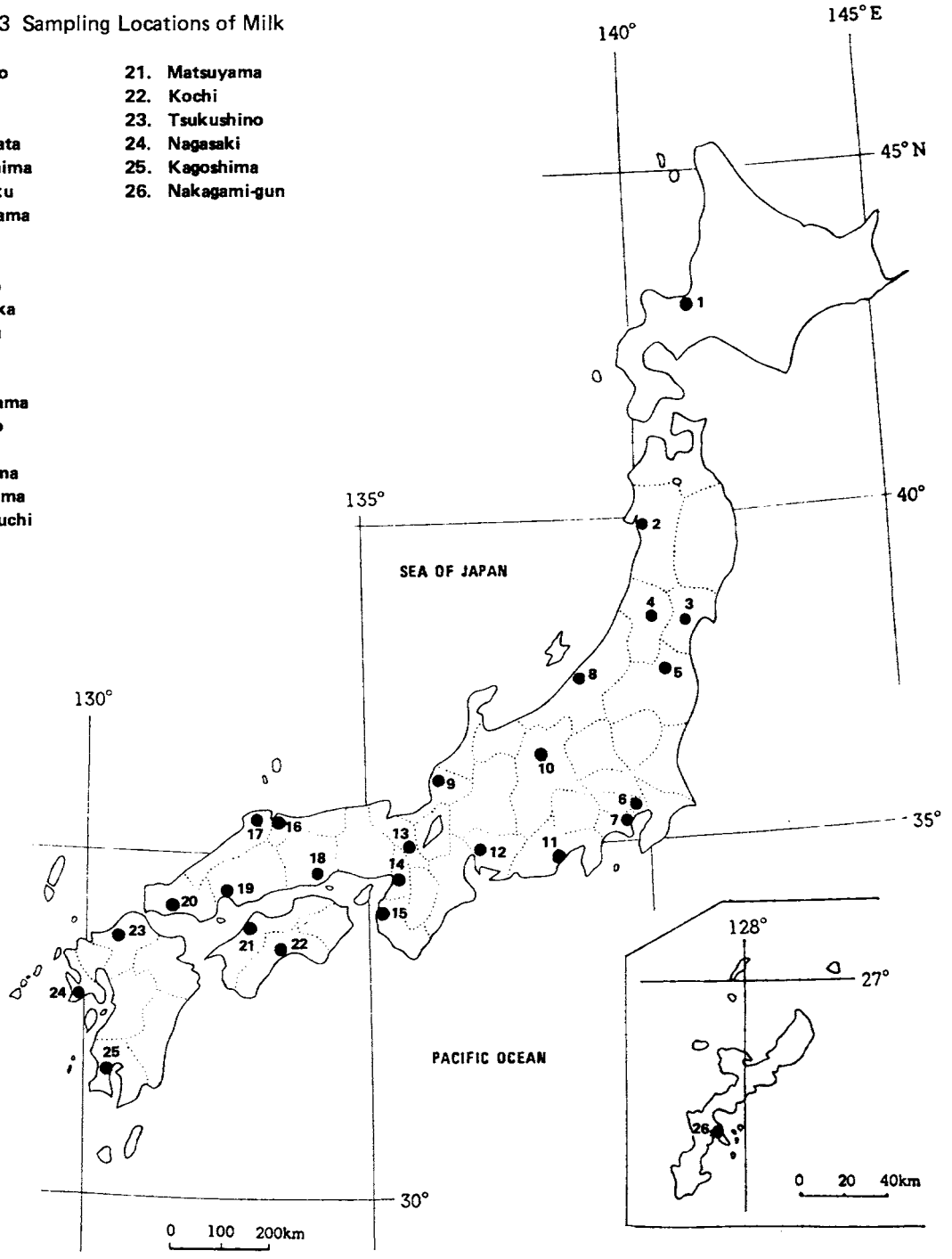
Table (7)-3: Strontium-90 and Cesium-137 in Milk

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
August, 1979							
Shinjuku, TOKYO	6.57	0.985	1.45	1.5 ± 0.25	1.5 ± 0.25	2.5 ± 0.23	1.7 ± 0.16
October, 1979							
Kyoto, KYOTO	7.03	1.10	1.45	1.6 ± 0.24	1.4 ± 0.22	2.3 ± 0.24	1.6 ± 0.17
November, 1979							
Fukui, FUKUI	7.03	1.11	1.55	2.2 ± 0.27	2.0 ± 0.24	2.1 ± 0.24	1.4 ± 0.15
December, 1979							
Sendai, MIYAGI	7.16	1.08	1.66	1.6 ± 0.29	1.5 ± 0.27	3.0 ± 0.32	1.8 ± 0.19
Matsue, SHIMANE	6.98	1.11	1.57	2.0 ± 0.26	1.8 ± 0.24	2.4 ± 0.24	1.5 ± 0.16
Nagasaki, NAGASAKI	6.89	1.07	1.56	1.0 ± 0.23	1.0 ± 0.22	2.2 ± 0.24	1.4 ± 0.15
Nakagami-gun, OKINAWA	6.95	1.11	1.64	0.6 ± 0.26	0.6 ± 0.23	1.6 ± 0.21	1.0 ± 0.13
January, 1980							
Sapporo, HOKKAIDO	7.34	1.16	1.62	3.1 ± 0.33	2.6 ± 0.28	11 ± 0.4	6.7 ± 0.27
Akita, AKITA	7.26	1.12	1.68	5.5 ± 0.41	4.9 ± 0.37	3.3 ± 0.27	2.0 ± 0.16
Osaka, OSAKA	7.32	1.15	1.64	1.7 ± 0.32	1.5 ± 0.28	2.3 ± 0.25	1.4 ± 0.15
Kagoshima, KAGOSHIMA	6.77	1.02	1.52	1.5 ± 0.27	1.5 ± 0.27	2.5 ± 0.23	1.6 ± 0.15
February, 1980							
Yamagata, YAMAGATA	6.07	0.914	1.35	1.5 ± 0.21	1.6 ± 0.23	2.0 ± 0.21	1.5 ± 0.15
Fukushima, FUKUSHIMA	7.48	1.12	1.71	0.9 ± 0.27	0.8 ± 0.24	2.9 ± 0.31	1.7 ± 0.18
Shinjuku, TOKYO	7.32	1.11	1.56	1.1 ± 0.26	1.0 ± 0.24	4.9 ± 0.30	3.1 ± 0.19
Yokohama, KANAGAWA	7.30	1.13	1.59	1.0 ± 0.23	0.9 ± 0.20	3.3 ± 0.26	2.1 ± 0.16
Niigata, NIIGATA	7.67	1.14	1.60	2.2 ± 0.33	2.0 ± 0.29	4.6 ± 0.34	2.9 ± 0.21
Nagano, NAGANO	7.25	1.11	1.61	1.8 ± 0.27	1.6 ± 0.24	2.5 ± 0.25	1.6 ± 0.15
Shizuoka, SHIZUOKA	7.13	1.08	1.56	1.5 ± 0.25	1.4 ± 0.23	3.1 ± 0.25	2.0 ± 0.16
Nagoya, AICHI	7.33	1.08	1.58	1.1 ± 0.25	1.0 ± 0.23	2.2 ± 0.22	1.4 ± 0.14
Wakayama, WAKAYAMA	6.64	1.05	1.39	1.3 ± 0.25	1.3 ± 0.24	1.4 ± 0.20	1.0 ± 0.15
Yonago, TOTTORI	7.28	1.11	1.51	1.3 ± 0.24	1.1 ± 0.22	5.7 ± 0.34	3.8 ± 0.22
Okayama, OKAYAMA	6.99	1.06	1.61	1.4 ± 0.23	1.3 ± 0.22	1.5 ± 0.22	0.9 ± 0.13
Hiroshima, HIROSHIMA	6.93	1.05	1.53	0.8 ± 0.20	0.7 ± 0.19	2.1 ± 0.23	1.4 ± 0.15
Yamaguchi, YAMAGUCHI	7.20	1.09	1.55	0.8 ± 0.24	0.8 ± 0.23	2.0 ± 0.22	1.3 ± 0.14
Matsuyama, EHIME	7.40	1.06	1.60	1.4 ± 0.25	1.3 ± 0.24	1.7 ± 0.24	1.1 ± 0.15
Kochi, KOCHI	7.27	1.11	1.61	2.0 ± 0.25	1.8 ± 0.23	3.3 ± 0.27	2.1 ± 0.17

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	(g/p/d)	(mg/p/d)	(mg/p/d)	pCi/p/d	S.U.	pCi/p/d	C.U.
Tsukushino, FUKUOKA	7.50	1.13	1.64	1.7 ± 0.27	1.5 ± 0.24	1.3 ± 0.22	0.8 ± 0.13
Nakagami-gun, OKINAWA	7.12	1.07	1.65	1.2 ± 0.24	1.1 ± 0.23	1.9 ± 0.23	1.1 ± 0.14
May, 1980							
Kyoto, KYOTO	6.88	1.03	1.60	1.5 ± 0.24	1.4 ± 0.24	1.2 ± 0.20	0.8 ± 0.13

Figure (7)-3 Sampling Locations of Milk

1. Sapporo
2. Akita
3. Sendai
4. Yamagata
5. Fukushima
6. Shinjuku
7. Yokohama
8. Niigata
9. Fukui
10. Nagano
11. Shizuoka
12. Nagoya
13. Kyoto
14. Osaka
15. Wakayama
16. Yonago
17. Matsue
18. Okayama
19. Hiroshima
20. Yamaguchi
21. Matsuyama
22. Kochi
23. Tsukushino
24. Nagasaki
25. Kagoshima
26. Nakagami-gun



(7)-4 Strontium-90 and Cesium-137 in Milk (powdered milk)

– continued from No. 52 of this publication –

Table 8: Strontium-90 and Cesium-137 in Powdered milk

Name of manufacturer	Component			^{90}Sr		^{137}Cs	
	Ash (%)	Ca (%)	K (%)	pCi/kg	S.U.	pCi/kg	C.U.
April, 1980							
*Morinaga	8.83	1.36	2.04	27 ± 1.3	2.0 ± 0.09	39 ± 1.2	1.9 ± 0.06
Morinaga	2.51	0.321	0.592	12 ± 0.6	3.7 ± 0.19	75 ± 1.2	13 ± 0.2
Yukijirushi	2.36	0.371	0.472	7.0 ± 0.48	1.9 ± 0.13	36 ± 0.8	7.6 ± 0.18
Meiji	2.70	0.440	0.581	14 ± 0.7	3.1 ± 0.16	74 ± 1.4	13 ± 0.2
Wakodo	2.34	0.325	0.557	5.0 ± 0.42	1.5 ± 0.13	12 ± 0.5	2.2 ± 0.09
*Meiji	8.28	1.28	1.85	31 ± 1.3	2.4 ± 0.10	68 ± 1.5	3.7 ± 0.08

*Skim milk

(8) Strontium-90 and Cesium-137 in Vegetables (from Oct. 1979 to Mar. 1980)

– continued from No. 52 of this publication –

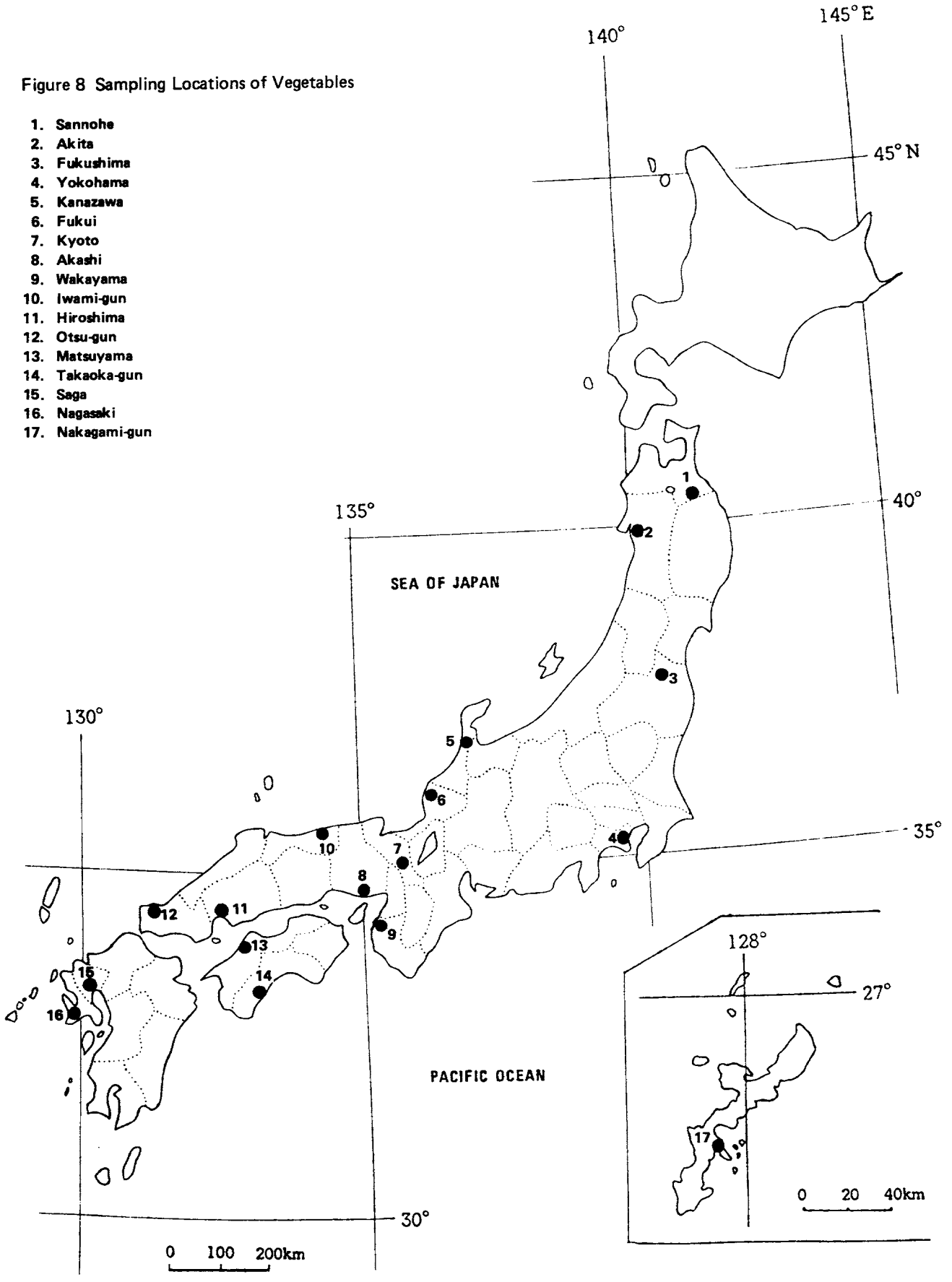
Table 8: Strontium-90 and Cesium-137 in Vegetables

Location	Component			^{90}Sr		^{137}Cs	
	Ash (%)	Ca (%)	K (%)	pCi/kg	S.U.	pCi/kg	C.U.
(Japanese radish)							
October, 1979							
Akita, AKITA	0.495	0.026	0.195	21 ± 0.6	79 ± 2.3	0.5 ± 0.13	0.3 ± 0.07
November, 1979							
Sannohe, AOMORI	0.538	0.021	0.234	9.7 ± 0.53	47 ± 2.6	1.0 ± 0.20	0.4 ± 0.08
Fukushima, FUKUSHIMA	0.520	0.024	0.215	5.0 ± 0.33	21 ± 1.4	0.1 ± 0.12	0.03 ± 0.006
Kanazawa, ISHIKAWA	0.572	0.026	0.223	12 ± 0.5	47 ± 1.8	1.0 ± 0.16	0.5 ± 0.07
Fukui, FUKUI	0.609	0.023	0.272	0.9 ± 0.21	3.8 ± 0.90	0.02 ± 0.14	0.01 ± 0.05
December, 1979							
Wakayama, WAKAYAMA	0.614	0.034	0.229	6.0 ± 0.58	18 ± 1.7	0.0 ± 0.28	0.0 ± 0.12
Iwami-gun, TOTTORI	0.624	0.022	0.263	8.2 ± 0.41	37 ± 1.9	0.0 ± 0.17	0.0 ± 0.06
Saga, SAGA	0.680	0.038	0.298	6.2 ± 0.42	16 ± 1.1	0.0 ± 0.16	0.0 ± 0.05
Nakagami-gun, OKINAWA	0.458	0.014	0.175	2.7 ± 0.22	19 ± 1.6	0.2 ± 0.10	0.1 ± 0.06

Location	Component			^{90}Sr		^{137}Cs	
	Ash (%)	Ca (%)	K (%)	pCi/kg	S.U.	pCi/kg	C.U.
January, 1980							
Kyoto, KYOTO	0.383	0.026	0.138	1.2 ± 0.16	4.6 ± 0.62	0.2 ± 0.11	0.2 ± 0.08
Takaoka-gun, KOCHI	0.652	0.037	0.275	7.4 ± 0.42	20 ± 1.1	0.8 ± 0.18	0.3 ± 0.06
Nagasaki, NAGASAKI	0.588	0.031	0.233	2.2 ± 0.26	7.3 ± 0.85	0.02 ± 0.13	0.01 ± 0.06
February, 1980							
Yokohama, KANAGAWA	0.544	0.029	0.218	2.9 ± 0.28	9.8 ± 0.96	0.05 ± 0.15	0.02 ± 0.07
Hiroshima, HIROSHIMA	0.596	0.041	0.214	4.2 ± 0.34	10 ± 0.8	0.3 ± 0.16	0.1 ± 0.07
March, 1980							
Otsu-gun, YAMAGUCHI	0.613	0.038	0.232	25 ± 0.7	66 ± 1.8	0.1 ± 0.13	0.05 ± 0.06
(Cabbage)							
November, 1979							
Sannohe, AOMORI	0.529	0.052	0.194	14 ± 0.6	27 ± 1.1	1.5 ± 0.21	0.8 ± 0.11
(Spinach)							
November, 1979							
Fukushima, FUKUSHIMA	1.99	0.090	0.809	10 ± 0.6	12 ± 0.7	0.7 ± 0.30	0.1 ± 0.04
Kanazawa, ISHIKAWA	1.43	0.035	0.426	4.3 ± 0.36	12 ± 1.1	3.5 ± 0.29	0.8 ± 0.07
Fukui, FUKUI	1.87	0.059	0.892	2.0 ± 0.37	3.5 ± 0.63	0.4 ± 0.24	0.04 ± 0.03
Matsuyama, EHIME	1.79	0.089	0.714	9.3 ± 0.58	10 ± 0.7	1.4 ± 0.26	0.2 ± 0.04
Matsuyama, EHIME	1.47	0.070	0.591	3.1 ± 0.32	4.5 ± 0.46	3.6 ± 0.28	0.6 ± 0.05
December, 1979							
Saga, SAGA	2.04	0.126	0.793	15 ± 0.8	12 ± 0.6	1.3 ± 0.30	0.2 ± 0.04
Nakagami-gun, OKINAWA	1.86	0.134	0.756	2.9 ± 0.34	2.1 ± 0.25	0.03 ± 0.20	0.04 ± 0.027
January, 1980							
Akashi, HYOGO	1.93	0.076	0.630	4.5 ± 0.48	5.9 ± 0.63	2.0 ± 0.31	0.3 ± 0.05
Takaoka-gun, KOCHI	1.69	0.111	0.632	16 ± 0.8	14 ± 0.7	1.4 ± 0.25	0.2 ± 0.04
Nagasaki, NAGASAKI	1.77	0.101	0.658	4.5 ± 0.52	4.4 ± 0.51	2.8 ± 0.33	0.4 ± 0.05
February, 1980							
Hiroshima, HIROSHIMA	1.35	0.059	0.480	1.2 ± 0.29	2.1 ± 0.9	1.6 ± 0.23	0.3 ± 0.05
Yokohama, KANAGAWA	1.52	0.038	0.663	3.7 ± 0.42	9.8 ± 1.1	0.3 ± 0.24	0.04 ± 0.04
March, 1980							
Otsu-gun, YAMAGUCHI	1.55	0.063	0.673	18 ± 0.7	29 ± 1.2	1.2 ± 0.28	0.2 ± 0.04
(Chinese cabbage)							
December, 1979							
Wakayama, WAKAYAMA	1.07	0.165	0.294	18 ± 1.0	11 ± 0.6	1.1 ± 0.33	0.4 ± 0.11

Figure 8 Sampling Locations of Vegetables

1. Sannohe
2. Akita
3. Fukushima
4. Yokohama
5. Kanazawa
6. Fukui
7. Kyoto
8. Akashi
9. Wakayama
10. Iwami-gun
11. Hiroshima
12. Otsu-gun
13. Matsuyama
14. Takaoka-gun
15. Saga
16. Nagasaki
17. Nakagami-gun



(9) Strontium-90 and Cesium-137 in Tea (Japanese tea)

(from May 1980 to Jun. 1980)

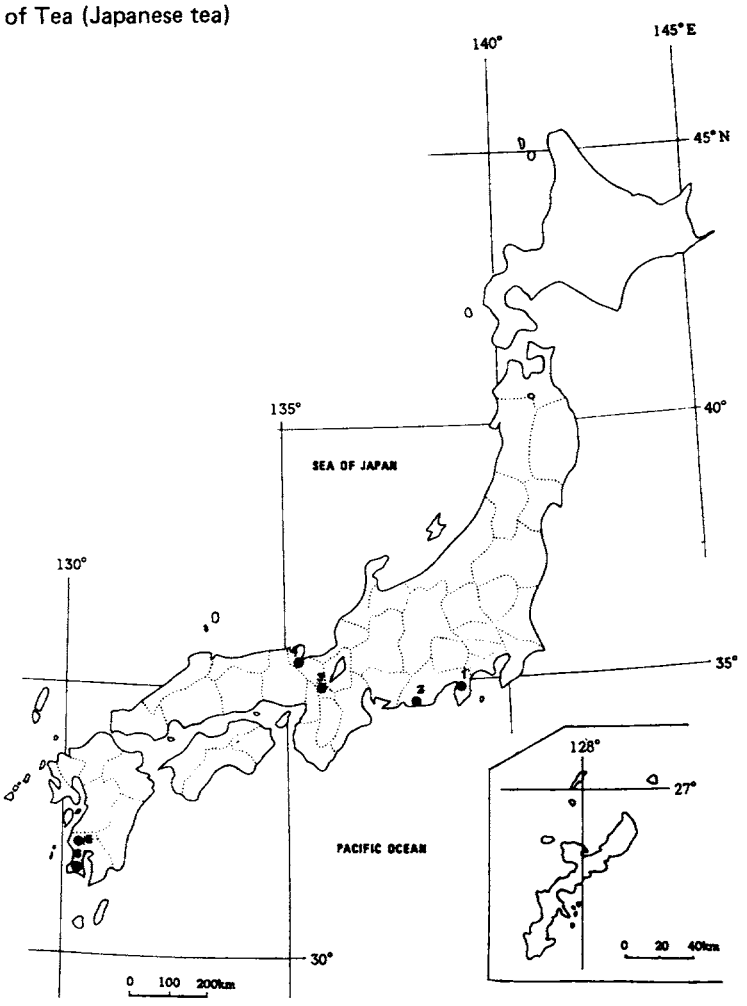
– continued from No. 52 of this publication –

Table 9: Strontium-90 and Cesium-137 in Tea

Location	Component			^{90}Sr		^{137}Cs	
	Ash (%)	Ca (%)	K (%)	pCi/kg	S.U.	pCi/kg	C.U.
May, 1980							
Uji, KYOTO	4.76	0.263	1.85	41 ± 5.0	16 ± 1.9	23 ± 3.1	1.2 ± 0.17
June, 1980							
Tagata-gun, SHIZUOKA	4.89	0.311	1.90	140 ± 8	44 ± 2.5	68 ± 4.3	3.6 ± 0.23
Iwata, SHIZUOKA	4.90	0.346	1.67	50 ± 6.7	14 ± 1.9	37 ± 3.5	2.2 ± 0.21
Yosa-gun, KYOTO	5.65	0.609	1.78	190 ±10	32 ± 1.6	44 ± 4.2	2.5 ± 0.23
Satsuma-gun, KAGOSHIMA	5.10	0.241	1.95	44 ± 5.4	18 ± 2.2	67 ± 4.4	3.4 ± 0.23
Kawabe-gun, KAGOSHIMA	4.21	0.228	1.63	26 ± 4.0	11 ± 1.7	67 ± 3.9	4.1 ± 0.24

Figure 9 Sampling Locations of Tea (Japanese tea)

1. **Tagata-gun**
2. **Iwata**
3. **Uji**
4. **Yosa-gun**
5. **Satsuma-gun**
6. **Kawabe-gun**



(10) Strontium-90 and Cesium-137 in Sea fish (from Dec. 1979 to Jun. 1980)

– continued from No. 52 of this publication –

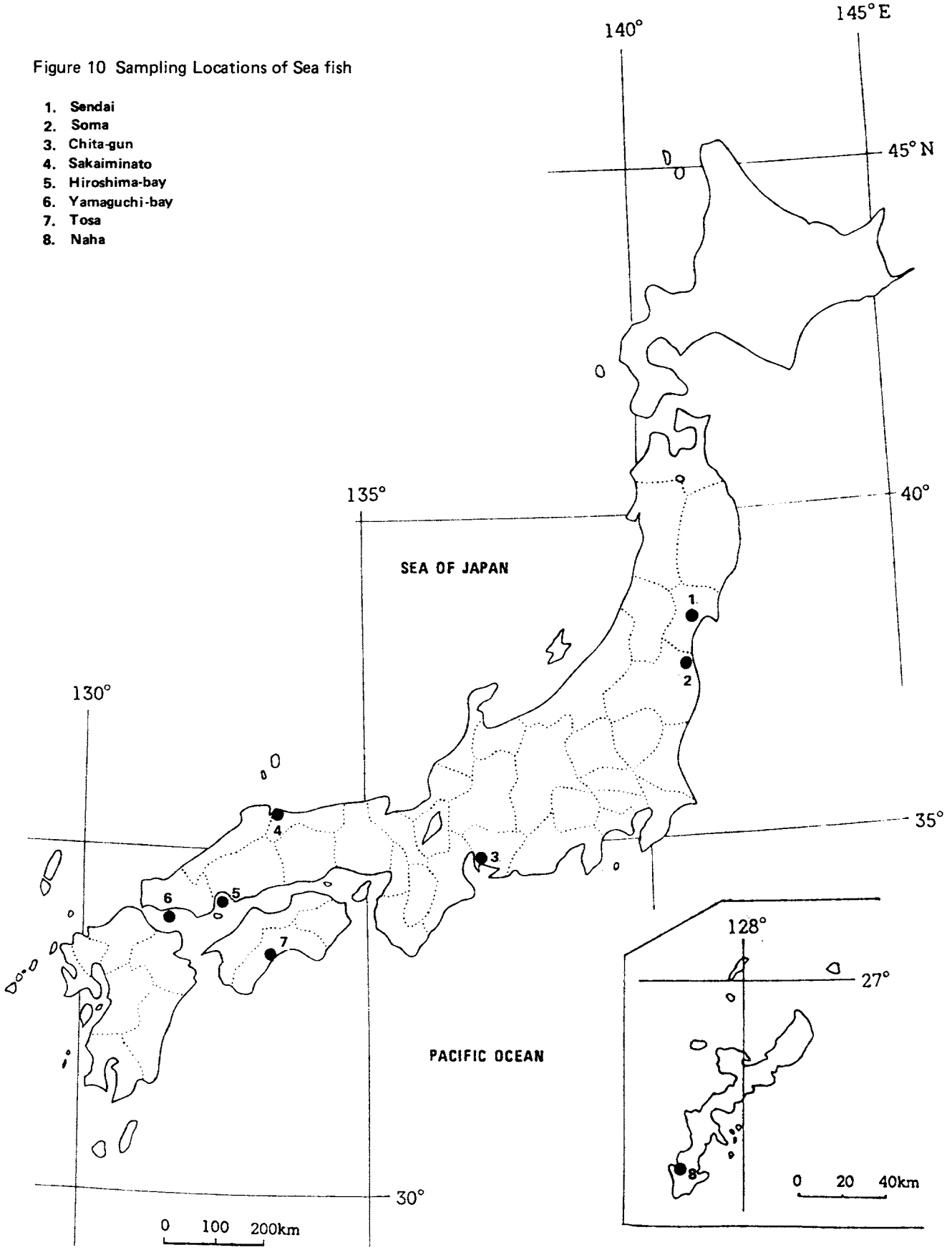
Table 10: Strontium-90 and Cesium-137 in Sea fish

Location		Component			^{90}Sr		^{137}Cs	
		Ash(%)	Ca(%)	K(%)	pCi/kg	S.U.	pCi/kg	C.U.
Pleuronectidae								
Sendai, MIYAGI	Dec. 1979	2.61	24.6	11.1	0.6 ± 0.28	0.1 ± 0.04	5.0 ± 0.37	1.7 ± 0.13
Hiroshima-bay, HIROSHIA	Feb. 1980	2.81	22.4	14.1	0.5 ± 0.25	0.1 ± 0.04	4.5 ± 0.34	1.1 ± 0.09
Sebastes inermis								
Soma, FUKUSHIMA	Jan. 1980	1.23	4.32	30.2	0.8 ± 0.84	1.4 ± 1.44	14 ± 0.7	3.4 ± 0.17
Pneumatophorus japonicus								
Sakaiminato, TOTTORI	Jan. 1980	1.38	4.35	15.6	0.3 ± 0.31	0.3 ± 0.31	9.4 ± 0.51	2.7 ± 0.15
Hexagrammos otakii								
Yamaguchi-bay YAMAGUCHI	Mar. 1980	2.29	25.0	9.90	0.3 ± 0.24	0.1 ± 0.04	2.9 ± 0.29	1.3 ± 0.13
Caesio chrysozonus cuvier								
Naha, OKINAWA	Mar. 1980	3.22	24.4	13.1	0.7 ± 0.31	0.1 ± 0.04	6.7 ± 0.44	1.5 ± 0.10
Sillago sihame								
Chita-gun, AICHI	Jun. 1980	3.79	27.1	14.7	1.0 ± 0.44	0.1 ± 0.04	4.6 ± 0.38	0.8 ± 0.07
Katsuwonus pelamis								
Tosa, KOCHI	May 1980	1.17	2.00	31.8	0.0 ± 0.34	0.0 ± 1.4	17 ± 0.7	4.4 ± 0.18

Scientific name	English name	Japanese name
Pleuronectidae	Flatfish	Karei
Sebastes inermis	Jacopever	Kurogara (Mebaru)
Pneumatophorus japonicus	Mackerel	Saba
Hexagrammos otakii	Rock-trout	Ainame
Caesio chrysozonus cuvier	Takasago	Takasago
Sillago sihame	Sillago	Kisu
Katsuwonus pelamis	Bonito	Katsuo

Figure 10 Sampling Locations of Sea fish

1. Sendai
2. Soma
3. Chita-gun
4. Sakaiminato
5. Hiroshima-bay
6. Yamaguchi-bay
7. Tosa
8. Naha



(11) Strontium-90 and Cesium-137 in Shellfish (from Feb. 1980 to Jun. 1980)

– continued from No. 52 of this publication –

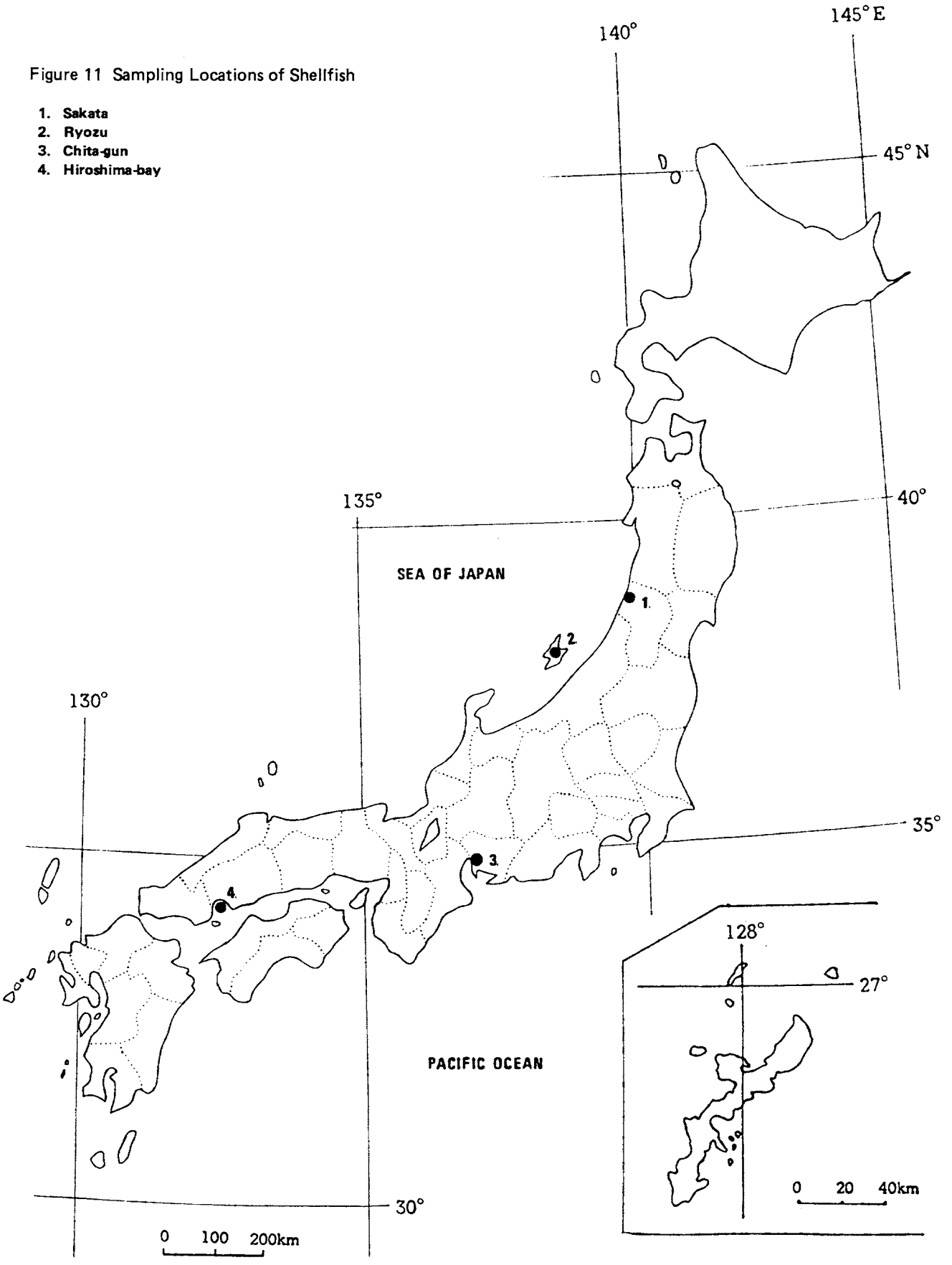
Table 11: Strontium-90 and Cesium-137 in Shellfish

Location	Sampling Date	Component			^{90}Sr		^{137}Cs	
		Ash(%)	Ca(%)	K(%)	pCi/kg	S.U.	pCi/kg	C.U.
Ostrea gigas								
Hiroshima-bay, HIROSHIMA	Feb. 1980	1.96	4.89	12.8	0.4 ± 0.56	0.5 ± 0.59	1.6 ± 0.46	0.6 ± 0.18
Gomphina melanaegis								
Sakata, YAMAGATA	Jul. 1980	1.54	4.17	17.8	0.0 ± 0.67	0.0 ± 1.0	2.4 ± 0.56	0.9 ± 0.20
Chita-gun, AICHI	Jun. 1980	1.57	4.57	18.2	0.1 ± 0.49	0.1 ± 0.68	1.5 ± 0.41	0.5 ± 0.14
Turbo cornutus								
Ryozu, NIIGATA	May 1980	2.41	2.99	11.3	0.0 ± 1.4	0.0 ± 2.0	1.6 ± 1.3	0.6 ± 0.46

Scientific name	English name	Japanese name
Ostrea gigas	Ouster	Kaki
Gomphina melanaegis		Kodamagai
Turbo cornutus	Wreath shell	Sazae
		Oasari

Figure 11 Sampling Locations of Shellfish

1. **Sakata**
2. **Ryozu**
3. **Chita-gun**
4. **Hiroshima-bay**



(12) Strontium-90 and Cesium-137 in Seaweeds (from Nov. 1979 to Jun. 1980)

– continued from No. 52 of this publication –

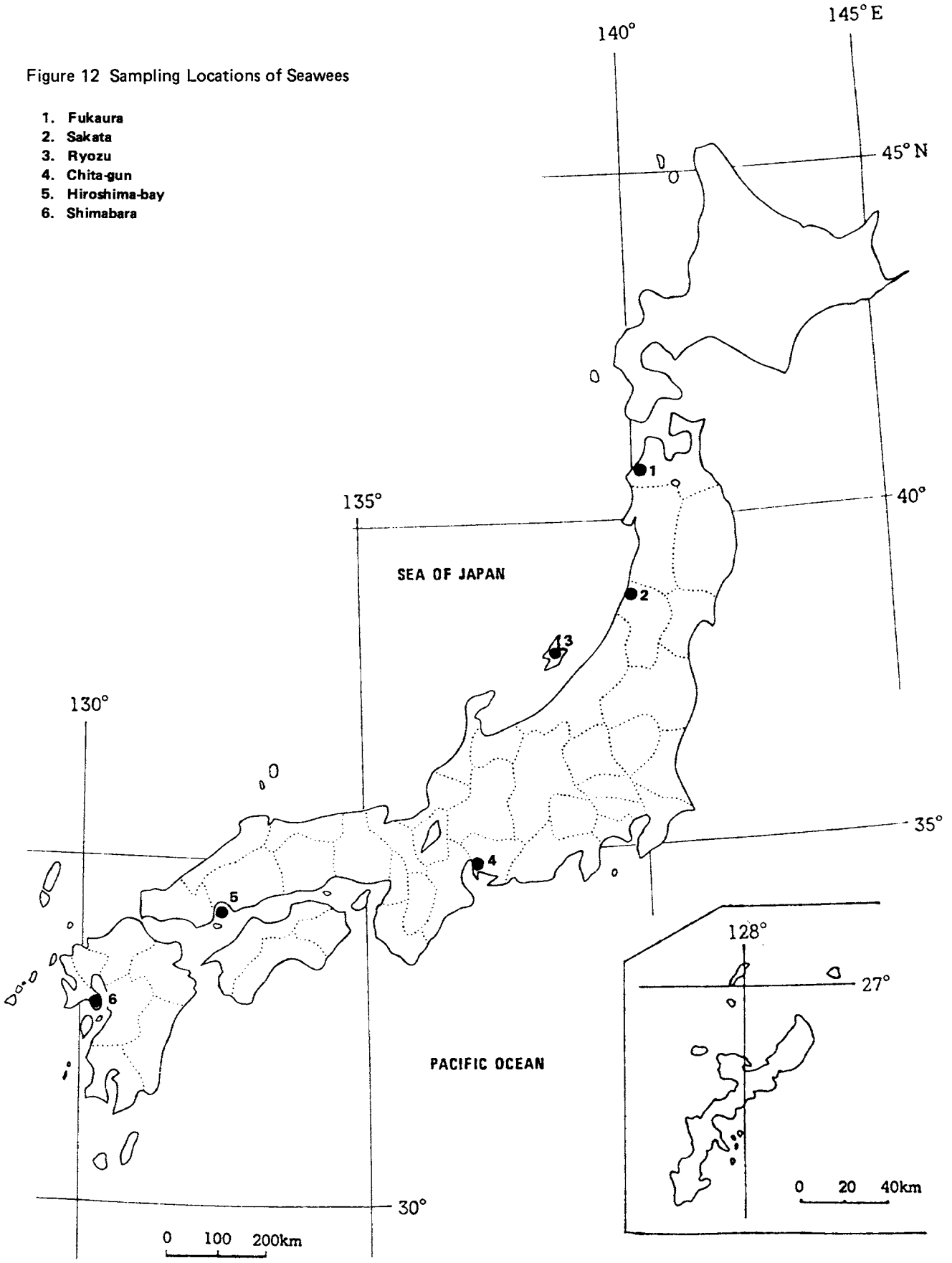
Table 12: Strontium-90 and Cesium-137 in Seaweeds

Location	Sampling Date	Component			^{90}Sr		^{137}Cs	
		Ash(%)	Ca(%)	K(%)	pCi/kg	S.U.	pCi/kg	C.U.
Sargassum fulvellum								
Fukaura, AOMORI	Nov. 1979	5.19	14.3	20.6	6.8 ± 0.66	0.9 ± 0.09	3.5 ± 0.43	0.3 ± 0.04
Undaria pinnatifida								
Chita-gun, AICHI	Jan. 1980	2.16	2.49	28.3	1.3 ± 0.37	2.3 ± 0.68	0.9 ± 0.26	0.1 ± 0.04
Hiroshima-bay, HIROSHIMA	Feb. 1980	3.29	1.89	16.4	0.8 ± 0.34	1.3 ± 0.55	1.4 ± 0.29	0.3 ± 0.05
Shimabara, NAGASAKI	Jan. 1980	1.30	6.33	27.4	2.1 ± 0.31	2.5 ± 0.37	0.3 ± 0.20	0.1 ± 0.05
Sakata, YAMAGATA	Jun. 1980	1.05	8.40	17.2	2.2 ± 0.41	2.4 ± 0.45	0.5 ± 0.27	0.3 ± 0.14
Ryozu, NIIGATA	May 1980	1.64	5.40	20.0	2.1 ± 0.46	2.3 ± 0.50	0.6 ± 0.30	0.2 ± 0.09

Scientific name	English name	Japanese name
Sargassum fulvellum	Gulfweed	Hondawara
Undaria pinnatifida	Wakame seaweed	Wakame

Figure 12 Sampling Locations of Seawees

1. Fukaura
2. Sakata
3. Ryozu
4. Chita-gun
5. Hiroshima-bay
6. Shimabara



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