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RADIOACTIVITY SURVEY DATA in Japan

Part 2
= Dietary Materials =

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Contents

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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 asampling tray, approximately 5000cm^2 in area, which was filled with water to a depth of 1 cm at the beginning of every month.

Strontium and cesium carrier solutions were added after the sample was filtered. Thetray was washed with 5ℓ of distilled water and the washing was combined to the filtrate.

The sample was passed through a cation exchange column (500mℓ of Dowex 50W X8, 50~100 mesh, Na form) at a rate flow of 80mℓ/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 3000m^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 the intake of the water-treatment plant and at the tap after water was left running for five minutes. Strontium andcesium carriers were added to the filtered water sample. The subsequent process was the same as that describedin thesection (1). Freshwater was treated inthe sameway as the service water.

(4) Soil

Soil was collected from the location in the spacious and flat area without past surface disturbance caused by duststorms, inflow and out flow due to precipitation, etc.. Any places located under trees in a forest, in astony area or inside of river banks were avoided. Soil was taken from two layers of different depths, 0-5cm and 5-20cm. The soil lumps were crushed by hands and driedin a drying oven regulated 105℃ . The soil was then passed through a 2mm sieve to remove plant roots and pebbles.

(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 givento 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 1mℓ to 1 ℓ of sea water, and then stored in 20ℓ 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 1m 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 4kg of thesample in wet weight was spread on a stainless steel dish after removed of the pebbles, shells and other foreign materials, and ried in a drying oven regulated at 105 ℃.

(7) Total diet

A full one day ordinary diet including three meals, water, tea and otherin-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 transfered to a porcelain dish and then ashed at 450℃ in an electric muffle furnace.

(8) Rice

Polished rice was collected in producing districts at the harvest and in consuming areaswhen 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 46 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 left vegetables and for nonstarch roots, respectively. After removing soil, the edible part of vegetable samplewas dried and carbonized in a stainless steelpan 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 wasused 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 4kg of shellfish including the shells was collected or purchased. Afterremoving 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 (source water)	semiyearly	100 ℓ
2. Service water (tap water)	semiyearly	100 ℓ
3. Freshwater	yearly (fishing season)	100 ℓ
(4) Soil		
1. 0～ 5 cm	yearly	4 kg
2. 5～ 20cm	yearly	4 kg
(5) Sea water	yearly	40 ℓ
(6) Sea sediments	yearly	4 kg
=Dietary materials=		
(7) Total diet	semiyearly	daily amount for 5 persons
(8) Rice		
1. Producing districts	yearly (harvesting season)	5 kg (polished rice)
2. Consuming districts	yaerly (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)	500g (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 and Sea sediment

Dried soil was crushed to smaller ones than 0.25 mm in size by a crusher. The sieved sample was ashed in an electric muffle furnace regulated at 450 ℃. The sample was then heated with hydrochloric acid, strontium and cesium carrier solutions and the mixture washeated. The insoluble constituent was filtered off and washed with water.

The dried sample was crushed to smaller ones than 0.25mm by a crushing machine. The further preparation of the sample was the same as that described in the section 2-(2).

(3) Rice

The ashed sample was pulverized with a porcelain mortar and passed through a 0.35mm sieve. The sievedsample to which both strontium and cesium carriers were added, was digested with nitric 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 constituent was filtered and washed. The filtrate and washings were combined for subsequent radiochemical analysis.

(4) Airborne dust, diet, milk, vegetables, fish and shellfish, seaweeds, tea and others

These ashed samples were treated with thesame 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-(4), were neutralized with sodium hydroxide. After sodium carbonate was added, the precipitate of strontium and calcium carbonates was separated. Thesupernatant solution was retainedfor cesium-137 determination. The carbonates weredissolved in hydrochloric acid and strontium and calcium were precipitated as oxalates. The precipitate was dissolved in nitric acid and strontium was separated from calcium by successive fuming nitric acid separation. 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 iron carrier was added. The solution was allowed to stand for two weeks for strontium-90 and yttrium-90 to attain equilibrium. Yttrium-90 was coprecipitated with ferric hydroxide andthe precipitate was filtered off, washed and counted.

(2) Cesium-137

The supernatant separated from the strontium fraction was acidified with hydrochloricacid. While stirring, cesium was adsorbed on the ammonium molybdophosphate added.

After filtered off and washed with hydrochlotric acid the precipitate was dissolved in 2.5N sodium hydroxide solution. The solution was adjusted to pH 8.2 with hydrochloric acid and allowed to cool. Resultant molybdenum hydroxide which separated out in the solution, was filtered off and washed with

water. EDTA was added to the filtrate and washings. Cesium and rubidium were adsorbed on a cation exchange column and cesiumwas separated from rubidium by eluting with hydrochloric acid.

The eluate was evaporated to dryness and was dissolved. The solution was filtered.
Chloroplatinic acid was added to precipitate cesium. The precipitate was filtered onto a tared paper using a demountable filter and washed with water and then ethanol. After drying, the chemical yield of cesium was determined by weighing the precipitate. Cesium-137 radioactivity was measured for this precipitate.

4. Determination of stable strontium, calcium and potassium

A weighed amount of soil or sea sediment was heated in a electric muffle furnace at 450℃ and then treated with hydrochloric acid forextraction.
A weighed aliquot of ashed samples of total diet, vegetables, milk, fish, shellfish or seaweeds was digested with hydrofluoric acid and nitric acid.
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 andpotassium were determined by atomic absorption andflame emission spectrometry, respectively.

5. Counting

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

6. Results

(1) Strontium-90 and Cesium-137 in Total Diet
(from Oct. 1993 to Mar. 1994)
-continued from No. 107 of this publication-
Table (1) Strontium-90 and Cesium-137 in Total Diet

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	Ash(g/p·d)	Ca(mg/p·d)	K(mg/p·d)	(Bq/p·d)	(Bq/gCa)	(Bq/p·d)	(Bq/gK)
October, 1993							
Saga-machi, KOCHI	14.1	492	1540	0.12 ± 0.015	0.24 ± 0.030	0.11 ± 0.010	0.070 ± 0.0064
November, 1993							
Iwaizumi-machi, IWATE	13.4	476	1480	0.056 ± 0.0095	0.12 ± 0.020	0.11 ± 0.010	0.075 ± 0.0065
Ishinomaki, MIYAGI	13.9	468	2180	0.046 ± 0.011	0.097 ± 0.023	0.049 ± 0.0080	0.023 ± 0.0036
Onagawa-machi, MIYAGI	18.0	751	1860	0.025 ± 0.0094	0.033 ± 0.012	0.14 ± 0.012	0.073 ± 0.0062
Akita, AKITA	18.1	537	2110	0.079 ± 0.0072	0.15 ± 0.013	0.068 ± 0.0078	0.032 ± 0.0037
Oomagari, AKITA	12.3	510	1870	0.050 ± 0.0074	0.099 ± 0.015	0.060 ± 0.0086	0.032 ± 0.0046
Yamagata, YAMAGATA	17.2	807	1940	0.081 ± 0.011	0.10 ± 0.013	0.024 ± 0.0056	0.013 ± 0.0029
Sagae, YAMAGATA	13.2	386	1460	0.062 ± 0.011	0.16 ± 0.028	0.028 ± 0.0062	0.019 ± 0.0043
Toyama, TOYAMA	14.5	454	1960	0.049 ± 0.013	0.11 ± 0.028	0.060 ± 0.0091	0.030 ± 0.0046
Takaoka, TOYAMA	12.9	365	1740	0.049 ± 0.012	0.14 ± 0.032	0.022 ± 0.0065	0.013 ± 0.0037
Tsuruga, FUKUI	18.0	1700	1610	0.064 ± 0.012	0.038 ± 0.0069	0.046 ± 0.0076	0.029 ± 0.0047
Nagano, NAGANO	9.10	275	1300	0.033 ± 0.0048	0.12 ± 0.018	0.019 ± 0.0067	0.015 ± 0.0051
Shizuoka, SHIZUOKA	17.5	644	2410	0.055 ± 0.0071	0.085 ± 0.011	0.058 ± 0.0089	0.024 ± 0.0037
Hamaoka-machi, SHIZUOKA	16.4	526	2080	0.052 ± 0.0065	0.099 ± 0.012	0.033 ± 0.0071	0.016 ± 0.0034
Nagoya, AICHI	15.6	942	1810	0.037 ± 0.0053	0.040 ± 0.0057	0.051 ± 0.0075	0.028 ± 0.0042
Shinshiro, AICHI	12.7	757	1830	0.063 ± 0.0077	0.083 ± 0.010	0.21 ± 0.015	0.12 ± 0.008
Owase, MIE	14.4	467	1990	0.078 ± 0.010	0.17 ± 0.022	0.046 ± 0.0074	0.023 ± 0.0037
Hamasaka-machi, HYOUGO	15.6	986	1770	0.082 ± 0.014	0.083 ± 0.014	0.039 ± 0.0070	0.022 ± 0.0039
Kashihara, NARA	13.0	702	1660	0.054 ± 0.0058	0.077 ± 0.0083	0.039 ± 0.0061	0.023 ± 0.0037
Gojou, NARA	14.5	754	1890	0.067 ± 0.013	0.089 ± 0.017	0.059 ± 0.0079	0.031 ± 0.0042
Wakayama, WAKAYAMA	9.89	717	1110	0.085 ± 0.0096	0.12 ± 0.013	0.033 ± 0.0055	0.030 ± 0.0050
Tottori, TOTTORI	15.0	474	2290	0.11 ± 0.008	0.22 ± 0.016	0.037 ± 0.0060	0.016 ± 0.0026

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	Ash(g/p·d)	Ca(mg/p·d)	K(mg/p·d)	(Bq/p·d)	(Bq/gCa)	(Bq/p·d)	(Bq/gK)
Fukube-mura, TOTTORI	13.5	430	2000	0.10 ± 0.013	0.23 ± 0.030	0.048 ± 0.0074	0.024 ± 0.0037
Matsue, SHIMANE	25.7	978	3870	0.17 ± 0.016	0.17 ± 0.016	0.067 ± 0.0084	0.017 ± 0.0022
Okayama, OKAYAMA	17.5	537	2390	0.057 ± 0.0059	0.11 ± 0.011	0.036 ± 0.0066	0.015 ± 0.0028
Kamisaibara-mura, OKAYAMA	16.9	524	2310	0.17 ± 0.017	0.33 ± 0.032	0.068 ± 0.0083	0.029 ± 0.0036
Matsuyama, EHIME	12.6	321	1740	0.048 ± 0.0071	0.15 ± 0.022	0.0090 ± 0.0058	0.0052 ± 0.0033
Ikata-machi, EHIME	10.3	440	1390	0.027 ± 0.0057	0.061 ± 0.013	0.020 ± 0.0064	0.014 ± 0.0046
Kochi, KOCHI	12.5	427	1650	0.099 ± 0.017	0.23 ± 0.040	0.027 ± 0.0070	0.016 ± 0.0043
Fukuoka, FUKUOKA	10.7	249	967	0.013 ± 0.011	0.050 ± 0.045	0.019 ± 0.0059	0.019 ± 0.0061
Dazaifu, FUKUOKA	13.5	456	1680	0.045 ± 0.012	0.099 ± 0.026	0.041 ± 0.0067	0.024 ± 0.0040
Saga, SAGA	17.3	443	1920	0.045 ± 0.012	0.10 ± 0.028	0.018 ± 0.0069	0.0095 ± 0.0036
Karatsu, SAGA	20.8	736	2580	0.063 ± 0.012	0.085 ± 0.017	0.020 ± 0.0064	0.0078 ± 0.0025
Nagasaki, NAGASAKI	17.8	881	2550	0.074 ± 0.014	0.084 ± 0.016	0.054 ± 0.0086	0.021 ± 0.0034
Matsuura, NAGASAKI	14.3	553	2090	0.063 ± 0.012	0.11 ± 0.022	0.077 ± 0.0088	0.037 ± 0.0042
Ooita, OOITA	14.2	448	1770	0.064 ± 0.0065	0.14 ± 0.014	0.050 ± 0.0084	0.029 ± 0.0047
Saiki, OOITA	17.1	512	1950	0.057 ± 0.0058	0.11 ± 0.011	0.037 ± 0.0071	0.019 ± 0.0036
Kagoshima, KAGOSHIMA	14.5	518	1820	0.043 ± 0.012	0.083 ± 0.024	0.039 ± 0.0072	0.021 ± 0.0040
Ookuchi, KAGOSHIMA	15.5	663	1880	0.072 ± 0.0066	0.11 ± 0.010	0.041 ± 0.0062	0.022 ± 0.0033
December, 1993							
Sapporo, HOKKAIDOU	18.8	783	2690	0.11 ± 0.015	0.14 ± 0.019	0.13 ± 0.012	0.049 ± 0.0045
Iwanai-machi, HOKKAIDOU	14.7	514	1790	0.071 ± 0.015	0.14 ± 0.029	0.022 ± 0.0071	0.012 ± 0.0040
Aomori, AOMORI	18.0	597	2210	0.044 ± 0.011	0.074 ± 0.019	0.042 ± 0.0069	0.019 ± 0.0031
Ajigasawa-machi, AOMORI	15.6	456	2020	0.074 ± 0.012	0.16 ± 0.026	0.029 ± 0.0057	0.014 ± 0.0028
Morioka, IWATE	13.0	316	1290	0.041 ± 0.0082	0.13 ± 0.026	0.024 ± 0.0053	0.018 ± 0.0041
Fukushima, FUKUSHIMA	21.3	1510	1950	0.098 ± 0.0087	0.065 ± 0.0057	0.035 ± 0.0075	0.018 ± 0.0038
Ookuma-machi, FUKUSHIMA	13.6	422	1730	0.071 ± 0.0073	0.17 ± 0.017	0.072 ± 0.0086	0.042 ± 0.0050

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	Ash(g/p·d)	Ca(mg/p·d)	K(mg/p·d)	(Bq/p·d)	(Bq/gCa)	(Bq/p·d)	(Bq/gK)
Mito, IBARAKI	15.9	530	2250	0.090 ± 0.012	0.17 ± 0.023	0.038 ± 0.0070	0.017 ± 0.0031
Tokai-mura, IBARAKI	18.1	720	2290	0.073 ± 0.013	0.10 ± 0.017	0.019 ± 0.0071	0.0084 ± 0.0031
Utsunomiya, TOCHIGI	12.4	486	1610	0.056 ± 0.0054	0.11 ± 0.011	0.042 ± 0.0074	0.026 ± 0.0046
Mooka, TOCHIGI	14.0	425	1620	0.048 ± 0.0056	0.11 ± 0.013	0.037 ± 0.0079	0.023 ± 0.0049
Maebashi, GUNMA	15.5	543	2320	0.053 ± 0.0057	0.098 ± 0.010	0.068 ± 0.0073	0.029 ± 0.0031
Nakanojou-machi, GUNMA	14.3	572	2380	0.088 ± 0.0084	0.15 ± 0.015	0.040 ± 0.0072	0.017 ± 0.0030
Urawa, SAITAMA	14.9	365	1620	0.048 ± 0.0050	0.13 ± 0.014	0.051 ± 0.0072	0.031 ± 0.0045
Kumagaya, SAITAMA	15.1	775	2060	0.072 ± 0.010	0.093 ± 0.013	0.030 ± 0.0065	0.015 ± 0.0031
Ichihara, CHIBA	14.8	491	1990	0.064 ± 0.0081	0.13 ± 0.017	0.037 ± 0.0069	0.019 ± 0.0035
Chikura-machi, CHIBA	20.4	821	3030	0.090 ± 0.0079	0.11 ± 0.010	0.053 ± 0.0077	0.017 ± 0.0025
Shinjuku, TOKYO	13.1	476	1960	0.046 ± 0.011	0.096 ± 0.023	0.10 ± 0.009	0.051 ± 0.0046
Hachijou-machi, TOKYO	15.0	596	1930	0.031 ± 0.010	0.053 ± 0.017	0.040 ± 0.0072	0.021 ± 0.0038
Yokohama, KANAGAWA	12.3	380	1960	0.048 ± 0.011	0.13 ± 0.029	0.029 ± 0.0079	0.015 ± 0.0040
Hiratsuka, KANAGAWA	16.8	475	2300	0.062 ± 0.012	0.13 ± 0.026	0.056 ± 0.0080	0.024 ± 0.0035
Kashiwazaki, NIIGATA	19.3	558	2490	0.10 ± 0.013	0.18 ± 0.023	0.052 ± 0.0076	0.021 ± 0.0030
Nishikawa-machi, NIIGATA	25.6	891	3590	0.094 ± 0.012	0.11 ± 0.013	0.059 ± 0.0076	0.017 ± 0.0021
Kanazawa, ISHIKAWA	16.2	455	2140	0.087 ± 0.014	0.19 ± 0.031	0.050 ± 0.0078	0.024 ± 0.0036
Yoshinodani-mura, ISHIKAWA	15.4	693	1890	0.075 ± 0.013	0.11 ± 0.019	0.070 ± 0.0086	0.037 ± 0.0046
Fukui, FUKUI	16.8	934	2200	0.081 ± 0.0073	0.086 ± 0.0079	0.065 ± 0.010	0.030 ± 0.0045
Koufu, YAMANASHI	13.7	429	1920	0.048 ± 0.0055	0.11 ± 0.013	0.040 ± 0.0075	0.021 ± 0.0039
Nirasaki, YAMANASHI	13.7	395	1780	0.049 ± 0.0056	0.12 ± 0.014	0.033 ± 0.0072	0.019 ± 0.0041
Toubu-machi, NAGANO	12.9	444	1900	0.052 ± 0.0056	0.12 ± 0.013	0.021 ± 0.0067	0.011 ± 0.0035
Gifu, GIFU	16.4	704	2400	0.025 ± 0.0094	0.036 ± 0.013	0.062 ± 0.0078	0.026 ± 0.0032
Takayama, GIFU	16.8	731	2500	0.055 ± 0.012	0.075 ± 0.017	0.049 ± 0.0072	0.020 ± 0.0029
Tsu, MIE	17.0	411	2180	0.063 ± 0.011	0.15 ± 0.026	0.033 ± 0.0071	0.015 ± 0.0033

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	Ash(g/p·d)	Ca(mg/p·d)	K(mg/p·d)	(Bq/p·d)	(Bq/gCa)	(Bq/p·d)	(Bq/gK)
Ootsu, SHIGA	16.4	578	2430	0.061 ± 0.0058	0.11 ± 0.010	0.053 ± 0.0070	0.022 ± 0.0029
Imazu-machi, SHIGA	15.5	927	1960	0.11 ± 0.007	0.12 ± 0.008	0.074 ± 0.0086	0.038 ± 0.0044
Kyoto, KYOTO	18.5	878	2680	0.076 ± 0.0067	0.087 ± 0.0076	0.046 ± 0.0070	0.017 ± 0.0026
Maizuru, KYOTO	17.3	964	1720	0.052 ± 0.0056	0.054 ± 0.0058	0.021 ± 0.0058	0.012 ± 0.0034
Osaka, OSAKA	19.5	748	2710	0.085 ± 0.014	0.11 ± 0.018	0.045 ± 0.0071	0.017 ± 0.0026
Sakai, OSAKA	11.7	425	1830	0.058 ± 0.0072	0.14 ± 0.017	0.020 ± 0.0061	0.011 ± 0.0033
Kakogawa, HYOUGO	15.4	661	1940	0.076 ± 0.0075	0.12 ± 0.011	0.023 ± 0.0057	0.012 ± 0.0029
Kashima-machi, SHIMANE	17.9	589	2300	0.13 ± 0.014	0.22 ± 0.023	0.077 ± 0.0082	0.034 ± 0.0036
Yamaguchi, YAMAGUCHI	15.6	598	1920	0.071 ± 0.0072	0.12 ± 0.012	0.036 ± 0.0066	0.019 ± 0.0034
Ajisu-machi, YAMAGUCHI	16.9	498	1950	0.062 ± 0.0073	0.12 ± 0.015	0.054 ± 0.0081	0.028 ± 0.0041
Tokushima, TOKUSHIMA	14.4	431	1900	0.055 ± 0.0064	0.13 ± 0.015	0.027 ± 0.0057	0.014 ± 0.0030
Takamatsu, KAGAWA	14.3	388	1960	0.041 ± 0.013	0.11 ± 0.033	0.034 ± 0.0065	0.017 ± 0.0033
Shirotori-machi, KAGAWA	17.0	510	2010	0.093 ± 0.016	0.18 ± 0.031	0.032 ± 0.0058	0.016 ± 0.0029
Kumamoto, KUMAMOTO	16.3	306	2000	0.055 ± 0.010	0.18 ± 0.033	0.036 ± 0.0070	0.018 ± 0.0035
Aso-machi, KUMAMOTO	17.5	584	2220	0.061 ± 0.011	0.10 ± 0.019	0.098 ± 0.011	0.044 ± 0.0049
Miyazaki, MIYAZAKI	18.8	707	2570	0.057 ± 0.012	0.081 ± 0.016	0.091 ± 0.0096	0.035 ± 0.0038
Takahara-machi, MIYAZAKI	21.4	743	2850	0.082 ± 0.012	0.11 ± 0.016	0.11 ± 0.010	0.039 ± 0.0035
January, 1994							
Miyoshi, HIROSHIMA	12.7	463	1520	0.043 ± 0.0089	0.093 ± 0.019	0.022 ± 0.0059	0.015 ± 0.0039
Febraly, 1994							
Hiroshima, HIROSHIMA	14.0	574	2170	0.048 ± 0.0047	0.084 ± 0.0082	0.033 ± 0.0060	0.015 ± 0.0028
Kamiita-machi, TOKUSHIMA	15.7	426	2050	0.040 ± 0.010	0.093 ± 0.024	0.031 ± 0.0060	0.015 ± 0.0029
Naha, Okinawa	13.5	334	1920	0.059 ± 0.011	0.18 ± 0.033	0.049 ± 0.0066	0.025 ± 0.0034
Okinawa, Okinawa	15.0	513	1960	0.061 ± 0.012	0.12 ± 0.022	0.032 ± 0.0061	0.016 ± 0.0031
March, 1994							

Location	Ash	Ca	K	^{90}Sr		^{137}Cs	
	Ash(g/p·d)	Ca(mg/p·d)	K(mg/p·d)	(Bq/p·d)	(Bq/gCa)	(Bq/p·d)	(Bq/gK)
Kitayama-mura, WAKAYAMA	10.9	763	1200	0.096 ± 0.012	0.13 ± 0.016	0.020 ± 0.0056	0.017 ± 0.0047

(2)-1 Strontium-90 and Cesium-137 in Rice (producing districts)
(from Oct. 1993 to Dec. 1993)
-continued from No. 107 of this publication-

Table (2)-1 Strontium-90 and Cesium-137 in Rice

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
October, 1993							
Mito, IBARAKI	0.529	0.063	0.973	0.016 ± 0.0076	0.25 ± 0.12	0.052 ± 0.0079	0.054 ± 0.0082
Chiba, CHIBA	0.618	0.034	0.952	0.0063 ± 0.0038	0.19 ± 0.11	0.0068 ± 0.0059	0.0072 ± 0.0061
Maki-machi, NIIGATA	0.564	0.023	0.908	0.0097 ± 0.0039	0.43 ± 0.17	0.077 ± 0.0093	0.085 ± 0.010
Kosugi-machi, TOYAMA	0.542	0.029	0.688	0.020 ± 0.0048	0.69 ± 0.17	0.023 ± 0.0051	0.034 ± 0.0075
Takane-machi, YAMANASHI	0.747	0.028	1.25	0.0063 ± 0.0037	0.22 ± 0.13	0.083 ± 0.0085	0.067 ± 0.0068
Shiga-machi, SHIGA	0.611	0.042	0.990	0.011 ± 0.0034	0.27 ± 0.083	0.016 ± 0.0049	0.016 ± 0.0050
Ishii-machi, TOKUSHIMA	0.644	0.030	0.837	0.0055 ± 0.0033	0.19 ± 0.11	0.0015 ± 0.0037	0.0018 ± 0.0045
Miki-machi, KAGAWA	0.499	0.029	0.988	0.0000 ± 0.0034	0.00 ± 0.12	0.0009 ± 0.0053	0.0009 ± 0.0054
November, 1993							
Ishikari-machi, HOKKAIDOU	0.662	0.035	1.17	0.0060 ± 0.0080	0.17 ± 0.23	0.0090 ± 0.0053	0.0077 ± 0.0045
Takizawa-mura, IWATE	0.601	0.025	1.00	0.0018 ± 0.0034	0.07 ± 0.13	0.16 ± 0.012	0.16 ± 0.012
Ishinomaki, MIYAGI	0.742	0.029	1.41	0.0000 ± 0.0077	0.00 ± 0.27	0.0000 ± 0.0063	0.0000 ± 0.0044
Utsunomiya, TOCHIGI	0.838	0.023	1.10	0.0084 ± 0.0038	0.36 ± 0.16	0.043 ± 0.0070	0.039 ± 0.0064
Maebashi, GUNMA	0.437	0.024	1.31	0.0005 ± 0.0031	0.02 ± 0.13	0.0031 ± 0.0049	0.0024 ± 0.0037
Kanazawa, ISHIKAWA	0.555	0.026	1.28	0.020 ± 0.0092	0.78 ± 0.35	0.061 ± 0.0081	0.047 ± 0.0063
Kasai, HYOUGO	0.491	0.041	0.712	0.0032 ± 0.0039	0.078 ± 0.096	0.0000 ± 0.0040	0.0000 ± 0.0056
Yamaguchi, YAMAGUCHI	0.754	0.040	1.18	0.0078 ± 0.0036	0.20 ± 0.090	0.074 ± 0.0085	0.063 ± 0.0073
Usa, OOITA	0.499	0.027	0.768	0.0064 ± 0.0040	0.24 ± 0.15	0.019 ± 0.0074	0.025 ± 0.0096
December, 1993							
Fukushima, FUKUSHIMA	0.640	0.026	1.09	0.0069 ± 0.0036	0.26 ± 0.14	0.018 ± 0.0055	0.017 ± 0.0050
Chikushino, FUKUOKA	0.758	0.029	1.44	0.017 ± 0.0099	0.58 ± 0.34	0.023 ± 0.0059	0.016 ± 0.0041
Kagoshima, KAGOSHIMA	0.506	0.023	0.840	0.0085 ± 0.0040	0.37 ± 0.18	0.14 ± 0.012	0.17 ± 0.014

(2)-2 Strontium-90 and Cesium-137 in Rice (consuming districts)
(from Oct. 1993 to Jan. 1994)
-continued from No, 105 of this publication-

Table (2)-2 Strontium-90 and Cesium-137 in Rice

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
October, 1993							
Akita, AKITA	0.543	0.030	1.09	0.012 ± 0.0040	0.39 ± 0.13	0.028 ± 0.0066	0.026 ± 0.0061
Mito, IBARAKI	0.484	0.026	1.04	0.0070 ± 0.0081	0.26 ± 0.31	0.0075 ± 0.0059	0.0072 ± 0.0056
Shinjuku, TOKYO	0.508	0.025	1.17	0.021 ± 0.0084	0.84 ± 0.34	0.0012 ± 0.0060	0.0010 ± 0.0051
Niigata, NIIGATA	0.459	0.025	0.771	0.0079 ± 0.0036	0.31 ± 0.14	0.056 ± 0.0081	0.073 ± 0.010
Fukui, FUKUI	0.432	0.023	0.976	0.013 ± 0.0075	0.56 ± 0.33	0.0060 ± 0.0050	0.0061 ± 0.0052
Kashihara, NARA	0.847	0.020	1.58	0.014 ± 0.0039	0.70 ± 0.20	0.0021 ± 0.0037	0.0013 ± 0.0023
Matsuyama, EHIME	0.543	0.028	1.14	0.0045 ± 0.0037	0.16 ± 0.13	0.012 ± 0.0060	0.011 ± 0.0053
November, 1993							
Sapporo, HOKKAIDOU	0.577	0.021	1.15	0.031 ± 0.0095	1.5 ± 0.45	0.0034 ± 0.0050	0.0029 ± 0.0044
Shizuoka, SHIZUOKA	0.381	0.033	0.720	0.0000 ± 0.0088	0.00 ± 0.27	0.0075 ± 0.0041	0.010 ± 0.0057
Kyoto, KYOTO	0.524	0.031	0.749	0.011 ± 0.0039	0.36 ± 0.12	0.0023 ± 0.0053	0.0030 ± 0.0071
Osaka, OSAKA	0.513	0.029	1.19	0.0027 ± 0.0032	0.09 ± 0.11	0.0029 ± 0.0051	0.0025 ± 0.0043
Kobe, HYOUGO	0.584	0.028	0.788	0.0078 ± 0.0039	0.28 ± 0.14	0.021 ± 0.0058	0.026 ± 0.0074
Shinguu, WAKAYAMA	0.623	0.028	0.822	0.018 ± 0.0046	0.64 ± 0.16	0.053 ± 0.0086	0.064 ± 0.010
Hiroshima, HIROSHIMA	0.562	0.038	0.804	0.0053 ± 0.0081	0.14 ± 0.21	0.014 ± 0.0048	0.018 ± 0.0060
Saga, SAGA	0.788	0.069	1.32	0.007 ± 0.010	0.11 ± 0.15	0.011 ± 0.0044	0.0082 ± 0.0033
December, 1993							
Yamagata, YAMAGATA	0.544	0.036	0.919	0.0070 ± 0.0034	0.19 ± 0.093	0.013 ± 0.0050	0.014 ± 0.0055
Urawa, SAITAMA	0.528	0.023	0.892	0.0046 ± 0.0094	0.20 ± 0.41	0.018 ± 0.0053	0.021 ± 0.0059
Yokohama, KANAGAWA	0.489	0.022	0.778	0.0087 ± 0.0041	0.40 ± 0.19	0.018 ± 0.0056	0.023 ± 0.0072
Nagoya, AICHI	0.528	0.028	1.16	0.013 ± 0.0041	0.47 ± 0.15	0.011 ± 0.0062	0.0092 ± 0.0054
Tottori, TOTTORI	0.561	0.025	0.729	0.0038 ± 0.0033	0.15 ± 0.13	0.090 ± 0.0088	0.12 ± 0.012
Matsue, SHIMANE	0.677	0.029	0.792	0.0030 ± 0.0033	0.10 ± 0.11	0.065 ± 0.0092	0.082 ± 0.012
Seto-machi, OKAYAMA	0.482	0.029	0.882	0.0009 ± 0.0032	0.03 ± 0.11	0.017 ± 0.0060	0.020 ± 0.0068
Kochi, KOCHI	0.521	0.029	0.933	0.0099 ± 0.0034	0.34 ± 0.12	0.019 ± 0.0050	0.020 ± 0.0054
Kasuga, FUKUOKA	0.599	0.026	0.857	0.011 ± 0.0091	0.43 ± 0.35	0.078 ± 0.0087	0.091 ± 0.010

Location	Component			^{90}Sr				^{137}Cs			
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)		(Bq/gCa)		(Bq/kgwet)		(Bq/gK)	
Yonagusuku-mura, Okinawa January, 1994	0.518	0.022	0.943	0.0000	± 0.0098	0.00	± 0.44	0.0081	± 0.0042	0.0085	± 0.0045
Hirosaki, AOMORI	0.603	0.026	1.01	0.010	± 0.0040	0.40	± 0.15	0.011	± 0.0064	0.011	± 0.0064
Nagasaki, NAGASAKI	0.508	0.028	0.950	0.0083	± 0.0040	0.30	± 0.14	0.12	± 0.011	0.13	± 0.011

(3)-1 Strontium-90 and Cesium-137 in Milk (producing districts for domestic program)
(from Oct. 1993 to Mar. 1994)
-continued from No. 107 of this publication-

Table (3)-1 Strontium-90 and Cesium-137 in Milk

Location	Component			^{90}Sr		^{137}Cs	
	Ash(g/ℓ)	Ca(g/ℓ)	K(g/ℓ)	(Bq/ℓ)	(Bq/gCa)	(Bq/ℓ)	(Bq/gK)
October, 1993							
Saga, SAGA	7.45	1.14	1.63	0.046 ± 0.0055	0.040 ± 0.0048	0.014 ± 0.0048	0.0088 ± 0.0030
Febraly, 1994							
Aomori, AOMORI	7.29	1.05	1.57	0.053 ± 0.0061	0.050 ± 0.0058	0.037 ± 0.0078	0.023 ± 0.0050
Takizawa-mura, IWATE	7.27	1.06	1.63	0.019 ± 0.0045	0.018 ± 0.0043	0.051 ± 0.0083	0.031 ± 0.0051
Mito, IBARAKI	7.71	1.18	1.65	0.033 ± 0.010	0.028 ± 0.0088	0.0047 ± 0.0045	0.0028 ± 0.0027
Nishinasuno-machi, TOCHIGI	7.75	1.18	1.75	0.033 ± 0.0052	0.028 ± 0.0044	0.030 ± 0.0076	0.017 ± 0.0044
Fujimi-mura, GUNMA	7.27	1.09	1.61	0.040 ± 0.0051	0.037 ± 0.0047	0.0011 ± 0.0045	0.0007 ± 0.0028
Yachimata, CHIBA	7.65	1.13	1.69	0.036 ± 0.0052	0.032 ± 0.0046	0.087 ± 0.0090	0.051 ± 0.0053
Tonami, TOYAMA	7.35	1.10	1.57	0.014 ± 0.0044	0.013 ± 0.0041	0.024 ± 0.0077	0.016 ± 0.0049
Oshimizu-machi, ISHIKAWA	7.37	1.15	1.69	0.049 ± 0.0055	0.042 ± 0.0048	0.16 ± 0.012	0.092 ± 0.0069
Kasamatsu-machi, GIFU	6.92	1.27	1.41	0.037 ± 0.0051	0.029 ± 0.0040	0.031 ± 0.0072	0.022 ± 0.0051
Oouchiyama-mura, MIE	7.51	1.13	1.61	0.018 ± 0.0049	0.016 ± 0.0044	0.016 ± 0.0065	0.0098 ± 0.0040
Hino-machi, SHIGA	7.42	1.14	1.61	0.031 ± 0.010	0.027 ± 0.0088	0.011 ± 0.0044	0.0070 ± 0.0027
Mihara-machi, HYOUGO	7.16	1.07	1.51	0.016 ± 0.0041	0.015 ± 0.0038	0.012 ± 0.0062	0.0081 ± 0.0041
Oouda-machi, NARA	7.66	1.19	1.62	0.047 ± 0.010	0.040 ± 0.0086	0.018 ± 0.0054	0.011 ± 0.0034
Kamiita-machi, TOKUSHIMA	7.12	1.09	1.57	0.025 ± 0.0045	0.023 ± 0.0041	0.0097 ± 0.0059	0.0062 ± 0.0038
Takase-machi, KAGAWA	7.63	1.15	1.62	0.025 ± 0.0049	0.022 ± 0.0043	0.015 ± 0.0065	0.0094 ± 0.0040
Matsuyama, EHIME	6.77	1.07	1.40	0.023 ± 0.0045	0.021 ± 0.0042	0.018 ± 0.0059	0.013 ± 0.0042
Koushi-machi, KUMAMOTO	7.30	1.13	1.59	0.019 ± 0.0089	0.017 ± 0.0079	0.019 ± 0.0049	0.012 ± 0.0031
Kujuu-machi, OOITA	7.75	1.19	1.65	0.025 ± 0.0049	0.021 ± 0.0041	0.10 ± 0.011	0.061 ± 0.0066
Takahara-machi, MIYAZAKI	7.27	1.07	1.67	0.032 ± 0.0050	0.030 ± 0.0047	0.11 ± 0.011	0.066 ± 0.0064
March, 1994							
Takane-machi, YAMANASHI	7.14	0.949	1.68	0.023 ± 0.0044	0.025 ± 0.0046	0.0072 ± 0.0062	0.0043 ± 0.0037

(3)-2 Strontium-90 and Cesium-137 in Milk (producing districts for WHO program)
(from Nov. 1993 to Feb. 1994)
-continued from No, 107 of this publication-

Table (3)-2 Strontium-90 and Cesium-137 in Milk

Location	Component			^{90}Sr		^{137}Cs	
	Ash(g/ ℓ)	Ca(g/ ℓ)	K(g/ ℓ)	(Bq/ ℓ)	(Bq/gCa)	(Bq/ ℓ)	(Bq/gK)
November, 1993							
Hokudainoujou, HOKKAIDOU	7.64	1.20	1.67	0.063 ± 0.011	0.052 ± 0.0094	0.20 ± 0.014	0.12 ± 0.008
Hachijo-Island, TOKYO	6.98	0.979	1.23	0.067 ± 0.011	0.068 ± 0.011	0.12 ± 0.010	0.099 ± 0.0083
Nishikawa-machi, NIIGATA	7.81	1.16	1.55	0.033 ± 0.0052	0.028 ± 0.0045	0.040 ± 0.0079	0.026 ± 0.0051
Katsuyama, FUKUI	7.46	1.16	1.68	0.032 ± 0.0088	0.028 ± 0.0076	0.026 ± 0.0056	0.015 ± 0.0033
Nose-machi, OSAKA	7.49	1.13	1.54	0.042 ± 0.0053	0.037 ± 0.0047	0.043 ± 0.0077	0.028 ± 0.0050
Hikawa-machi, SHIMANE	7.75	1.23	1.69	0.060 ± 0.011	0.048 ± 0.0090	0.025 ± 0.0061	0.015 ± 0.0036
Kochi, KOCHI	7.50	1.21	1.60	0.033 ± 0.0047	0.027 ± 0.0039	0.024 ± 0.0057	0.015 ± 0.0036
Yasu-machi, FUKUOKA	6.96	1.06	1.47	0.030 ± 0.0050	0.028 ± 0.0047	0.0040 ± 0.0044	0.0027 ± 0.0030
Kajiki-machi, KAGOSHIMA	7.50	1.16	1.62	0.038 ± 0.0095	0.033 ± 0.0082	0.024 ± 0.0060	0.015 ± 0.0037
December, 1993							
Takamiya-machi, HIROSHIMA	7.10	1.08	1.51	0.030 ± 0.0087	0.028 ± 0.0080	0.015 ± 0.0049	0.010 ± 0.0032
January, 1994							
Nose-machi, OSAKA	7.46	1.09	1.48	0.031 ± 0.0096	0.028 ± 0.0088	0.027 ± 0.0059	0.018 ± 0.0040
Febraly, 1994							
Hokudainoujou, HOKKAIDOU	7.56	1.23	1.66	0.035 ± 0.0056	0.028 ± 0.0045	0.11 ± 0.011	0.064 ± 0.0067
Hachijo-Island, TOKYO	6.32	0.947	1.37	0.072 ± 0.010	0.076 ± 0.011	0.039 ± 0.0067	0.028 ± 0.0049
Nishikawa-machi, NIIGATA	8.17	1.17	1.68	0.027 ± 0.0053	0.023 ± 0.0045	0.016 ± 0.0065	0.0093 ± 0.0038
Katsuyama, FUKUI	7.44	1.16	1.62	0.021 ± 0.0044	0.018 ± 0.0038	0.021 ± 0.0071	0.013 ± 0.0044
Hikawa-machi, SHIMANE	7.07	1.15	1.55	0.041 ± 0.0054	0.036 ± 0.0047	0.041 ± 0.0077	0.026 ± 0.0049
Takamiya-machi, HIROSHIMA	7.71	1.09	1.60	0.026 ± 0.0045	0.024 ± 0.0042	0.0093 ± 0.0047	0.0058 ± 0.0030
Kochi, KOCHI	7.45	1.19	1.59	0.058 ± 0.0059	0.049 ± 0.0050	0.011 ± 0.0046	0.0066 ± 0.0029
Yasu-machi, FUKUOKA	7.17	1.08	1.55	0.018 ± 0.0085	0.017 ± 0.0079	0.0000 ± 0.0039	0.0000 ± 0.0025
Kajiki-machi, KAGOSHIMA	7.27	1.12	1.54	0.036 ± 0.0095	0.032 ± 0.0084	0.039 ± 0.0076	0.025 ± 0.0049

(3)-3 Strontium-90 and Cesium-137 in Milk (consuming districts)
(from Oct. 1993 to Mar. 1994)
-continued from No. 107 of this publication-
Table (3)-3 Strontium-90 and Cesium-137 in Milk

Location	Component			^{90}Sr		^{137}Cs	
	Ash(g/ℓ)	Ca(g/ℓ)	K(g/ℓ)	(Bq/ℓ)	(Bq/gCa)	(Bq/ℓ)	(Bq/gK)
October, 1993							
Sendai, MIYAGI	7.24	1.10	1.58	0.021 ± 0.0047	0.019 ± 0.0043	0.015 ± 0.0067	0.0095 ± 0.0043
Kyoto, KYOTO	7.32	1.09	1.59	0.028 ± 0.0046	0.025 ± 0.0042	0.013 ± 0.0054	0.0084 ± 0.0034
November, 1993							
Shinguu, WAKAYAMA	6.48	0.974	1.38	0.014 ± 0.0040	0.014 ± 0.0041	0.0055 ± 0.0040	0.0040 ± 0.0029
Yonagusuku-mura, Okinawa	7.14	1.06	1.57	0.026 ± 0.0044	0.025 ± 0.0041	0.0061 ± 0.0038	0.0039 ± 0.0024
December, 1993							
Akita, AKITA	7.00	1.04	1.51	0.045 ± 0.0091	0.043 ± 0.0087	0.028 ± 0.0055	0.018 ± 0.0036
January, 1994							
Osaka, OSAKA	7.20	1.07	1.52	0.025 ± 0.0041	0.024 ± 0.0038	0.0087 ± 0.0041	0.0058 ± 0.0027
Yonago, TOTTORI	7.27	1.11	1.59	0.042 ± 0.0097	0.038 ± 0.0088	0.035 ± 0.0073	0.022 ± 0.0046
Febraly, 1994							
Sapporo, HOKKAIDOU	7.35	1.15	1.60	0.051 ± 0.0063	0.045 ± 0.0055	0.072 ± 0.010	0.045 ± 0.0063
Yamagata, YAMAGATA	7.00	1.07	1.52	0.028 ± 0.0043	0.026 ± 0.0040	0.012 ± 0.0045	0.0080 ± 0.0030
Fukushima, FUKUSHIMA	7.49	1.12	1.63	0.016 ± 0.0092	0.014 ± 0.0082	0.014 ± 0.0051	0.0084 ± 0.0031
Urawa, SAITAMA	7.03	1.07	1.53	0.020 ± 0.0091	0.018 ± 0.0085	0.0047 ± 0.0045	0.0031 ± 0.0029
Shinjuku, TOKYO	7.03	1.06	1.47	0.040 ± 0.0093	0.038 ± 0.0088	0.010 ± 0.0060	0.0070 ± 0.0041
Yokohama, KANAGAWA	6.98	1.06	1.52	0.026 ± 0.0046	0.024 ± 0.0043	0.020 ± 0.0058	0.013 ± 0.0038
Niigata, NIIGATA	7.65	1.15	1.59	0.031 ± 0.0051	0.027 ± 0.0045	0.041 ± 0.0082	0.026 ± 0.0052
Fukui, FUKUI	7.34	1.11	1.60	0.031 ± 0.0050	0.028 ± 0.0045	0.022 ± 0.0074	0.014 ± 0.0046
Nagano, NAGANO	5.90	0.906	1.27	0.023 ± 0.0042	0.026 ± 0.0047	0.0073 ± 0.0054	0.0058 ± 0.0043
Shizuoka, SHIZUOKA	7.28	1.11	1.58	0.021 ± 0.0044	0.019 ± 0.0039	0.043 ± 0.0082	0.027 ± 0.0052
Nagoya, AICHI	7.48	1.11	1.55	0.050 ± 0.011	0.045 ± 0.0097	0.013 ± 0.0062	0.0082 ± 0.0040
Matsue, SHIMANE	7.30	1.12	1.53	0.023 ± 0.0048	0.020 ± 0.0043	0.031 ± 0.0071	0.020 ± 0.0047
Okayama, OKAYAMA	7.39	1.13	1.60	0.023 ± 0.0095	0.021 ± 0.0084	0.056 ± 0.0089	0.035 ± 0.0056
Hiroshima, HIROSHIMA	7.13	1.08	1.54	0.023 ± 0.0042	0.021 ± 0.0039	0.0077 ± 0.0042	0.0050 ± 0.0027
Yamaguchi, YAMAGUCHI	7.16	1.09	1.53	0.011 ± 0.0087	0.010 ± 0.0080	0.017 ± 0.0047	0.011 ± 0.0031

Location	Component			^{90}Sr		^{137}Cs	
	Ash(g/ ℓ)	Ca(g/ ℓ)	K(g/ ℓ)	(Bq/ ℓ)	(Bq/gCa)	(Bq/ ℓ)	(Bq/gK)
Matsuyama, EHIME	7.30	1.08	1.47	0.040 ± 0.0057	0.037 ± 0.0052	0.041 ± 0.0079	0.028 ± 0.0054
Kochi, KOCHI	8.28	1.25	1.76	0.032 ± 0.0043	0.026 ± 0.0034	0.0098 ± 0.0045	0.0056 ± 0.0026
Chikushino, FUKUOKA	7.19	1.08	1.54	0.033 ± 0.0094	0.031 ± 0.0086	0.038 ± 0.0062	0.025 ± 0.0040
Nagasaki, NAGASAKI	7.05	1.10	1.51	0.023 ± 0.0044	0.021 ± 0.0040	0.019 ± 0.0062	0.012 ± 0.0041
March, 1994							
Kagoshima, KAGOSHIMA	7.29	1.12	1.59	0.038 ± 0.0096	0.034 ± 0.0086	0.028 ± 0.0068	0.018 ± 0.0043

(3)-4 Strontium-90 and Cesium-137 in Milk (powderd milk)
(from Nov. 1993 to Jan. 1994)
-continued from No. 107 of this publication-

Table (3)-4 Strontium-90 and Cesium-137 in Milk

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kg)	(Bq/gCa)	(Bq/kg)	(Bq/gK)
November, 1993							
Sample A,	7.96	12.2	17.7	0.42 ± 0.015	0.034 ± 0.0013	0.52 ± 0.022	0.029 ± 0.0012
Sample B,	2.47	3.36	5.98	0.048 ± 0.0062	0.014 ± 0.0018	0.12 ± 0.011	0.020 ± 0.0019
Sample D,	2.68	4.02	6.49	0.048 ± 0.0059	0.012 ± 0.0015	0.071 ± 0.0086	0.011 ± 0.0013
Sample E,	2.39	3.73	5.31	0.050 ± 0.0062	0.013 ± 0.0017	0.10 ± 0.010	0.019 ± 0.0019
Sample F,	2.45	3.14	4.95	0.043 ± 0.0061	0.014 ± 0.0019	0.19 ± 0.013	0.039 ± 0.0027
January, 1994							
Sample C,	8.05	12.5	17.3	0.37 ± 0.016	0.029 ± 0.0013	2.9 ± 0.05	0.17 ± 0.003

※ Skim milk

(4)-1 Strontium-90 and cesium-137 in Vegetables (producing districts)
(from Oct. 1993 to Mar. 1994)

-continued from No, 107 of this publication-

Table (4)-1 :Strontium-90 and cesium-137 in Vegetables

Location	Component			^{90}Sr				^{137}Cs			
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)		(Bq/gCa)		(Bq/kgwet)		(Bq/gK)	
(Cabbage)											
October, 1993											
Mutsu, AOMORI	0.594	0.310	2.27	0.091	± 0.0090	0.29	± 0.029	0.092	± 0.010	0.040	± 0.0046
November, 1993											
Sannohe-machi, AOMORI	0.526	0.361	2.04	0.28	± 0.014	0.77	± 0.040	0.057	± 0.0081	0.028	± 0.0040
(Chinese cabbege)											
October, 1993											
Tamayama-mura, IWATE	0.604	0.462	2.35	0.18	± 0.013	0.39	± 0.028	0.0096	± 0.0034	0.0041	± 0.0014
November, 1993											
Shinguu, WAKAYAMA	0.657	0.560	2.47	0.15	± 0.008	0.27	± 0.014	0.014	± 0.0041	0.0056	± 0.0017
December, 1993											
Utsunomiya, TOCHIGI	0.577	0.507	2.08	0.37	± 0.017	0.72	± 0.033	0.068	± 0.0064	0.033	± 0.0031
(Japanese radish)											
October, 1993											
Tamayama-mura, IWATE	0.497	0.271	2.01	0.12	± 0.016	0.44	± 0.060	0.0029	± 0.0045	0.0014	± 0.0022
Utsunomiya, TOCHIGI	0.610	0.292	2.38	0.13	± 0.012	0.45	± 0.041	0.016	± 0.0040	0.0068	± 0.0017
Kanazawa, ISHIKAWA	0.439	0.184	1.69	0.029	± 0.0047	0.16	± 0.026	0.062	± 0.0081	0.037	± 0.0048
Ishii-machi, TOKUSHIMA	0.654	0.242	2.76	0.035	± 0.0087	0.14	± 0.036	0.0000	± 0.0051	0.0000	± 0.0019
Takamatsu, KAGAWA	0.424	0.250	1.47	0.36	± 0.014	1.4	± 0.06	0.015	± 0.0070	0.010	± 0.0047
November, 1993											
Sannohe-machi, AOMORI	0.472	0.261	1.85	0.14	± 0.010	0.54	± 0.037	0.033	± 0.0058	0.018	± 0.0032
Mito, IBARAKI	0.444	0.280	1.66	0.071	± 0.0073	0.25	± 0.026	0.0060	± 0.0045	0.0036	± 0.0027
Maebashi, GUNMA	0.557	0.217	2.42	0.071	± 0.0076	0.33	± 0.035	0.0058	± 0.0051	0.0024	± 0.0021
Kosugi-machi, TOYAMA	0.329	0.130	1.29	0.061	± 0.0088	0.47	± 0.068	0.0012	± 0.0030	0.0009	± 0.0023
Fukui, FUKUI	0.456	0.149	2.04	0.16	± 0.010	1.1	± 0.07	0.0000	± 0.0033	0.0000	± 0.0016
Gifu, GIFU	0.403	0.142	1.64	0.0056	± 0.0067	0.039	± 0.047	0.0037	± 0.0037	0.0022	± 0.0022

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Hamamatsu, SHIZUOKA	0.447	0.185	1.80	0.14 ± 0.011	0.74 ± 0.057	0.014 ± 0.0081	0.0080 ± 0.0045
Gotenba, SHIZUOKA	0.520	0.229	2.19	0.15 ± 0.010	0.64 ± 0.045	0.18 ± 0.014	0.081 ± 0.0065
Meiwa-machi, MIE	0.488	0.205	2.15	0.090 ± 0.015	0.44 ± 0.074	0.024 ± 0.0072	0.011 ± 0.0034
Adogawa-machi, SHIGA	0.367	0.174	1.50	0.28 ± 0.018	1.6 ± 0.10	0.014 ± 0.0044	0.0093 ± 0.0029
Kasai, HYOUGO	0.647	0.176	2.65	0.078 ± 0.011	0.44 ± 0.063	0.0043 ± 0.0033	0.0016 ± 0.0012
Shinguu, WAKAYAMA	1.13	0.707	4.51	0.20 ± 0.020	0.29 ± 0.028	0.012 ± 0.0058	0.0026 ± 0.0013
Shime-machi, FUKUOKA	0.482	0.284	2.06	0.025 ± 0.011	0.087 ± 0.040	0.0077 ± 0.0045	0.0037 ± 0.0022
Saga, SAGA	0.638	0.208	3.12	0.040 ± 0.0070	0.19 ± 0.034	0.0000 ± 0.0050	0.0000 ± 0.0016
Takanabe-machi, MIYAZAKI	0.603	0.259	2.45	0.26 ± 0.061	0.99 ± 0.063	0.062 ± 0.0064	0.025 ± 0.0026
Kaimon-machi, KAGOSHIMA	0.624	0.238	2.40	0.080 ± 0.0085	0.34 ± 0.036	0.016 ± 0.0073	0.0067 ± 0.0030
December, 1993							
Fukushima, FUKUSHIMA	0.529	0.405	1.79	0.080 ± 0.0089	0.20 ± 0.022	0.0000 ± 0.0047	0.0000 ± 0.0026
Chiba, CHIBA	0.599	0.271	2.54	0.24 ± 0.014	0.88 ± 0.053	0.024 ± 0.0083	0.0093 ± 0.0033
Takane-machi, YAMANASHI	0.521	0.312	2.16	0.16 ± 0.012	0.52 ± 0.039	0.0000 ± 0.0025	0.0000 ± 0.0012
Kashihara, NARA	0.513	0.201	2.09	0.020 ± 0.0048	0.097 ± 0.024	0.0049 ± 0.0045	0.0023 ± 0.0022
Kokufu-machi, TOTTORI	0.571	0.203	2.53	0.046 ± 0.0074	0.23 ± 0.0036	0.0000 ± 0.0024	0.00000 ± 0.00094
Yuya-machi, YAMAGUCHI	0.746	0.249	3.16	0.12 ± 0.008	0.49 ± 0.032	0.0003 ± 0.0058	0.0001 ± 0.0018
Kubokawa-machi, KOCHI	0.580	0.173	2.48	0.20 ± 0.020	1.2 ± 0.12	0.0000 ± 0.0039	0.0000 ± 0.0016
Usa, OOITA	0.671	0.195	3.13	0.051 ± 0.0081	0.26 ± 0.042	0.0079 ± 0.0063	0.0025 ± 0.0020
(Spinach)							
October, 1993							
Fukushima, FUKUSHIMA	1.70	0.842	8.62	0.11 ± 0.009	0.13 ± 0.011	0.016 ± 0.0060	0.0018 ± 0.00069
Toyama, TOYAMA	1.83	1.04	7.52	0.079 ± 0.011	0.076 ± 0.011	0.0005 ± 0.0051	0.00007 ± 0.00068
Kanazawa, ISHIKAWA	1.38	1.42	3.18	0.042 ± 0.0053	0.030 ± 0.0038	0.047 ± 0.0081	0.015 ± 0.0025
Kashihara, NARA	1.59	0.628	6.22	0.16 ± 0.009	0.25 ± 0.015	0.021 ± 0.0072	0.0034 ± 0.0012
Takamatsu, KAGAWA	1.63	0.835	6.61	0.024 ± 0.0059	0.028 ± 0.0070	0.0011 ± 0.0072	0.0002 ± 0.0011

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
November, 1993							
Mito, IBARAKI	1.36	0.405	6.02	0.099 ± 0.0086	0.24 ± 0.021	0.035 ± 0.0075	0.0059 ± 0.0013
Maebashi, GUNMA	1.96	0.784	8.02	0.22 ± 0.012	0.28 ± 0.015	0.023 ± 0.0062	0.0029 ± 0.00077
Fukui, FUKUI	1.77	0.558	6.76	0.039 ± 0.011	0.070 ± 0.020	0.018 ± 0.0078	0.0026 ± 0.0012
Gifu, GIFU	1.56	1.09	4.52	0.13 ± 0.012	0.12 ± 0.011	0.0097 ± 0.0045	0.0021 ± 0.0010
Gotenba, SHIZUOKA	1.22	1.23	3.47	1.0 ± 0.03	0.83 ± 0.024	0.48 ± 0.019	0.14 ± 0.006
Kusu-machi, MIE	1.36	0.589	5.87	0.038 ± 0.010	0.065 ± 0.018	0.0030 ± 0.0054	0.00051 ± 0.00093
Kasai, HYOUGO	1.41	0.464	5.90	0.11 ± 0.015	0.24 ± 0.032	0.014 ± 0.0053	0.0023 ± 0.00089
Kurayoshi, TOTTORI	1.44	0.438	6.58	0.12 ± 0.012	0.28 ± 0.029	0.039 ± 0.0070	0.0060 ± 0.0011
Shime-machi, FUKUOKA	1.58	0.629	6.89	0.058 ± 0.0071	0.092 ± 0.011	0.0042 ± 0.0047	0.00061 ± 0.00068
Saga, SAGA	1.24	0.511	6.13	0.030 ± 0.0066	0.058 ± 0.013	0.0050 ± 0.0056	0.00082 ± 0.00091
Takanabe-machi, MIYAZAKI	1.12	0.376	4.05	0.11 ± 0.012	0.30 ± 0.032	0.014 ± 0.0048	0.0034 ± 0.0012
December, 1993							
Chiba, CHIBA	1.52	0.266	6.68	0.035 ± 0.0060	0.13 ± 0.023	0.061 ± 0.0099	0.0091 ± 0.0015
Takane-machi, YAMANASHI	2.32	1.04	9.06	0.10 ± 0.014	0.097 ± 0.013	0.0004 ± 0.0041	0.00005 ± 0.00046
Rittou-machi, SHIGA	1.85	0.483	8.05	0.068 ± 0.0066	0.14 ± 0.014	0.0060 ± 0.0045	0.00075 ± 0.00056
Yuya-machi, YAMAGUCHI	1.45	0.658	5.90	0.096 ± 0.0082	0.15 ± 0.012	0.0059 ± 0.0083	0.0010 ± 0.0014
Kubokawa-machi, KOCHI	1.57	0.374	7.06	0.036 ± 0.013	0.096 ± 0.034	0.027 ± 0.0064	0.0038 ± 0.00091
Usa, OOITA	2.11	0.447	9.62	0.068 ± 0.0073	0.15 ± 0.016	0.052 ± 0.0083	0.0054 ± 0.00086
Febraly, 1994							
Matsuyama, EHIME	1.62	0.448	6.64	0.0016 ± 0.0085	0.004 ± 0.019	0.017 ± 0.0074	0.0025 ± 0.0011
March, 1994							
Ishii-machi, TOKUSHIMA	2.25	0.628	8.71	0.076 ± 0.0077	0.12 ± 0.012	0.0077 ± 0.0051	0.00089 ± 0.00059
Ei-machi, KAGOSHIMA	2.20	0.464	9.57	0.054 ± 0.0066	0.12 ± 0.014	0.12 ± 0.012	0.013 ± 0.0012

(4)-2 Strontium-90 and cesium-137 in Vegetables (consuming districts)
(from Oct. 1993 to Feb. 1994)

-continued from No. 107 of this publication-

Table (4)-2 :Strontium-90 and cesium-137 in Vegetables

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Cabbage)							
November, 1993							
Akita, AKITA	0.699	0.735	2.48	0.073 ± 0.0061	0.099 ± 0.0082	0.0098 ± 0.0039	0.0039 ± 0.0016
(Japanese radish)							
October, 1993							
Sendai, MIYAGI	0.351	0.219	1.26	1.7 ± 0.04	7.7 ± 0.18	0.038 ± 0.0061	0.030 ± 0.0048
Yamagata, YAMAGATA	0.444	0.265	1.68	0.13 ± 0.009	0.48 ± 0.033	0.0091 ± 0.0054	0.0054 ± 0.0032
Kyoto, KYOTO	0.449	0.162	1.77	0.25 ± 0.014	1.6 ± 0.09	0.010 ± 0.0076	0.0058 ± 0.0043
November, 1993							
Akita, AKITA	0.535	0.298	2.31	0.036 ± 0.0063	0.12 ± 0.021	0.0097 ± 0.0052	0.0042 ± 0.0023
Shinjuku, TOKYO	0.557	0.208	2.20	0.085 ± 0.013	0.41 ± 0.063	0.0087 ± 0.0062	0.0039 ± 0.0028
Niigata, NIIGATA	0.434	0.160	1.80	0.026 ± 0.0051	0.16 ± 0.032	0.021 ± 0.0058	0.012 ± 0.0032
Osaka, OSAKA	0.377	0.122	1.57	0.026 ± 0.0043	0.21 ± 0.035	0.0079 ± 0.0047	0.0050 ± 0.0030
Okayama, OKAYAMA	0.439	0.252	1.73	0.028 ± 0.0093	0.11 ± 0.037	0.0027 ± 0.0039	0.0015 ± 0.0023
December, 1993							
Yonagusuku-mura, Okinawa	0.620	0.188	2.49	0.083 ± 0.0057	0.44 ± 0.030	0.0008 ± 0.0029	0.0003 ± 0.0012
January, 1994							
Nagasaki, NAGASAKI	0.406	0.141	1.60	0.067 ± 0.011	0.47 ± 0.078	0.023 ± 0.0059	0.014 ± 0.0037
Febraly, 1994							
Yokohama, KANAGAWA	0.469	0.233	1.98	0.023 ± 0.0047	0.098 ± 0.020	0.0065 ± 0.0043	0.0033 ± 0.0022
(Spinach)							
October, 1993							
Yamagata, YAMAGATA	1.96	0.414	8.21	0.059 ± 0.0068	0.14 ± 0.016	0.0095 ± 0.0066	0.0012 ± 0.00080
November, 1993							
Shinjuku, TOKYO	1.79	0.456	7.84	0.039 ± 0.0067	0.085 ± 0.015	0.031 ± 0.0071	0.0040 ± 0.00091
Kyoto, KYOTO	1.34	0.670	4.90	0.051 ± 0.0063	0.076 ± 0.0094	0.046 ± 0.0086	0.0094 ± 0.0018

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Osaka, OSAKA	1.51	0.930	5.66	0.12 ± 0.009	0.13 ± 0.010	0.0062 ± 0.0075	0.0011 ± 0.0013
Okayama, OKAYAMA December, 1993	1.55	0.843	5.96	0.16 ± 0.015	0.19 ± 0.018	0.031 ± 0.0075	0.0052 ± 0.0013
Yonagusuku-mura, Okinawa January, 1994	1.47	0.435	6.02	0.0085 ± 0.0039	0.020 ± 0.0091	0.0000 ± 0.0040	0.00000 ± 0.00067
Nagasaki, NAGASAKI Febraly, 1994	1.71	0.695	6.79	0.083 ± 0.015	0.12 ± 0.022	0.020 ± 0.0078	0.0029 ± 0.0011
Yokohama, KANAGAWA	1.80	0.398	7.49	0.034 ± 0.0059	0.087 ± 0.015	0.019 ± 0.0063	0.0025 ± 0.00084
Matsuyama, EHIME	1.65	0.576	6.54	0.0063 ± 0.0088	0.011 ± 0.015	0.0051 ± 0.0065	0.00079 ± 0.00099

(5) Strontium-90 and cesium-137 in Sea Fish
(from Oct. 1993 to Feb. 1994)

-continued from No, 107 of this publication-

Table (5) :Strontium-90 and cesium-137 in Sea Fish

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Branchiostegus sp)							
November, 1993							
Nagasaki, NAGASAKI	1.25	0.633	3.77	0.000 ± 0.013	0.000 ± 0.020	0.17 ± 0.014	0.045 ± 0.0037
(Limanda herzensteini)							
November, 1993							
Mutsu, AOMORI	1.37	0.800	3.62	0.0013 ± 0.0053	0.0017 ± 0.0066	0.10 ± 0.010	0.029 ± 0.0026
Niigata, NIIGATA	1.37	0.704	3.30	0.0098 ± 0.0045	0.014 ± 0.0063	0.077 ± 0.0091	0.023 ± 0.0028
Mikuni-machi, FUKUI	2.00	3.84	3.05	0.0074 ± 0.0037	0.0019 ± 0.00097	0.10 ± 0.010	0.033 ± 0.0034
Aji-machi, KAGAWA	1.39	0.686	4.02	0.0047 ± 0.0039	0.0069 ± 0.0056	0.10 ± 0.010	0.025 ± 0.0024
Febraly, 1994							
Ootake, HIROSHIMA	2.94	6.85	3.12	0.023 ± 0.0071	0.0033 ± 0.0010	0.073 ± 0.0085	0.023 ± 0.0027
(Mugil cephalus)							
November, 1993							
Ushimado-machi, OKAYAMA	1.15	0.255	3.53	0.0062 ± 0.0055	0.025 ± 0.022	0.15 ± 0.013	0.043 ± 0.0037
(Pterocaesio diagramma)							
December, 1993							
Yonagusuku-mura, Okinawa	4.19	11.0	4.25	0.028 ± 0.0080	0.0026 ± 0.00073	0.19 ± 0.014	0.045 ± 0.0032
(Sardinops melanostictus)							
January, 1994							
Nagano, NAGANO	2.93	7.23	2.64	0.0063 ± 0.0056	0.00087 ± 0.00077	0.076 ± 0.0095	0.029 ± 0.0036
(Scomber australasicus)							
Febraly, 1994							
Chikura-machi, CHIBA	1.36	0.222	4.16	0.012 ± 0.013	0.053 ± 0.059	0.13 ± 0.013	0.032 ± 0.0031
(Scomber japonicus)							
January, 1994							
Oki-abjacent seas, TOTTRI	1.18	0.296	3.24	0.008 ± 0.011	0.029 ± 0.037	0.14 ± 0.014	0.044 ± 0.0043

(5) Strontium-90 and cesium-137 in Sea Fish
(from Oct. 1993 to Feb. 1994)

-continued from No, 107 of this publication-

Table (5) :Strontium-90 and cesium-137 in Sea Fish

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Scomber sp)							
November, 1993							
Osaka, OSAKA	0.897	0.467	2.30	0.002 ± 0.011	0.004 ± 0.024	0.11 ± 0.011	0.046 ± 0.0048
December, 1993							
Kyoto, KYOTO	1.18	0.224	3.38	0.0000 ± 0.0097	0.000 ± 0.043	0.14 ± 0.012	0.041 ± 0.0035
(Sebastes inermis)							
Febraly, 1994							
Yamaguchi, YAMAGUCHI	4.84	13.3	2.98	0.010 ± 0.0062	0.00075 ± 0.00047	0.098 ± 0.011	0.033 ± 0.0036
(Seriola quinqueradiata)							
October, 1993							
Togi-machi, ISHIKAWA	1.41	0.809	4.10	0.0068 ± 0.0066	0.0085 ± 0.0081	0.16 ± 0.012	0.038 ± 0.0028
(Spratelloides gracilis)							
December, 1993							
Akune, KAGOSHIMA	2.93	5.75	3.16	0.0085 ± 0.0095	0.0015 ± 0.0017	0.15 ± 0.012	0.049 ± 0.0038
(Trachurus sp)							
November, 1993							
Odawara, KANAGAWA	1.32	0.344	4.12	0.0067 ± 0.0050	0.019 ± 0.014	0.19 ± 0.013	0.045 ± 0.0031
Shizuoka, SHIZUOKA	3.21	7.34	3.61	0.015 ± 0.0048	0.0021 ± 0.00065	0.22 ± 0.015	0.061 ± 0.0041
Shinguu, WAKAYAMA	3.19	6.44	2.26	0.016 ± 0.0049	0.0024 ± 0.00076	0.10 ± 0.010	0.044 ± 0.0046

Sea Fish

Japanese name	English name	Scientific name
Amadai	Tilefish	Branchiostegus sp
Magarei	Brown sole	Limanda herzensteini
Bora	Gray mullet	Mugil cephalus
Takasago	Golden banded fusilier	Pterocaesio diagramma
Maiwashi	Japanese pilchard	Sardinops melanostictus
Gomasaba	Spotted chub mackerel	Scomber australasicus
Masaba	Pacific mackerel	Scomber japonicus
Saba	Mackerel	Scomber sp
Mebaru	Black rockfish	Sebastes inermis
Buri	Yellow-tail	Seriola quinqueradiata
Kibinago	Blue sprat	Spratelloides gracilis
Aji	Horse mackerel	Trachurus sp

(6) Strontium-90 and cesium-137 in Freshwater Fish
(from Nov. 1993 to Dec. 1993)

-continued from No, 107 of this publication-

Table (6) :Strontium-90 and cesium-137 in Freshwater Fish

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Carassius auratus)							
November, 1993							
Niigata, NIIGATA	1.12	0.675	3.05	0.057 ± 0.012	0.085 ± 0.018	0.15 ± 0.012	0.048 ± 0.0041
December, 1993							
Mikata-machi, FUKUI	1.37	1.78	3.04	0.13 ± 0.009	0.073 ± 0.0053	0.19 ± 0.013	0.063 ± 0.0043
Uji, KYOTO	3.87	11.2	2.57	0.61 ± 0.029	0.054 ± 0.0026	0.035 ± 0.0066	0.013 ± 0.0026
(Cyprinus carpio)							
December, 1993							
Shobara, HIROSHIMA	0.994	0.348	2.84	0.046 ± 0.0088	0.13 ± 0.025	0.10 ± 0.011	0.037 ± 0.0037
(Hypomesus nipponensis)							
December, 1993							
Suwa, NAGANO	2.26	4.95	2.87	0.090 ± 0.011	0.018 ± 0.0023	0.073 ± 0.0086	0.025 ± 0.0030
(Salmo gairdneri)							
November, 1993							
Kumagaya, SAITAMA	1.22	0.134	4.35	0.003 ± 0.010	0.023 ± 0.076	0.16 ± 0.013	0.038 ± 0.0029

Freshwater Fish

Japanese name	English name	Scientific name
Funa	Crucian carp	Carassius anratus
Koi	Carp	Cyprinus carpio
Wakasagi	Japanese smelt	Hypomesus nipponensis
Nijimasu	Rainbow trout	Salmo gairdneri

(7) Strontium-90 and cesium-137 in Shellfish
(from Nov. 1993 to Feb. 1994)

-continued from No, 107 of this publication-

Table (7) :Strontium-90 and cesium-137 in Shellfish

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Crassostrea gigas)							
Febraly, 1994							
Hatsukaichi, HIROSHIMA	1.36	0.251	2.40	0.010 ± 0.0082	0.040 ± 0.033	0.017 ± 0.0067	0.0070 ± 0.0028
(Patinopecten yessoensis)							
November, 1993							
Mutsu, AOMORI	1.37	0.216	2.26	0.0000 ± 0.0057	0.000 ± 0.026	0.041 ± 0.0075	0.018 ± 0.0033
Febraly, 1994							
Yamada-machi, IWATE	2.19	0.273	2.88	0.0000 ± 0.0058	0.000 ± 0.021	0.023 ± 0.0064	0.0080 ± 0.0022

Shellfish

Japanese name	English name	Scientific name
Magaki	Giant Pacific oyster	*Crassostrea gigas*
Hotategai	Yesso scallop	*Patinopecten yessoensis*

(8) Strontium-90 and cesium-137 in Seaweeds
(Feb. 1994 to)

-continued from No. 107 of this publication-

Table (8) :Strontium-90 and cesium-137 in Seaweeds

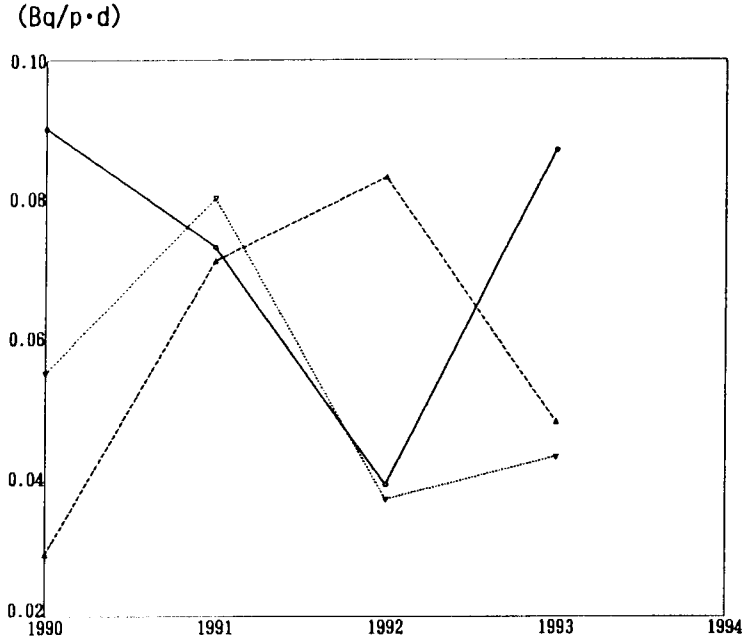
Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Undaria pinnatifida)							
Febraly, 1994							
Minamichita-machi, AICHI	2.24	0.701	6.42	0.042 ± 0.0064	0.060 ± 0.0091	0.032 ± 0.0067	0.0050 ± 0.0010
Hiroshima, HIROSHIMA	1.59	0.342	4.77	0.0086 ± 0.0060	0.025 ± 0.018	0.020 ± 0.0054	0.0042 ± 0.0011
Shimabara, NAGASAKI	2.62	0.823	8.91	0.039 ± 0.0090	0.048 ± 0.011	0.023 ± 0.0058	0.0026 ± 0.00066

Shellfish

Japanese name	English name	Scientific name
Magaki	Giant Pacific oyster	Crassostrea gigas
Hotategai	Yesso scallop	Patinopecten yessoensis

＊ ＊ Total Diet ＊ ＊

<Strontium-90>



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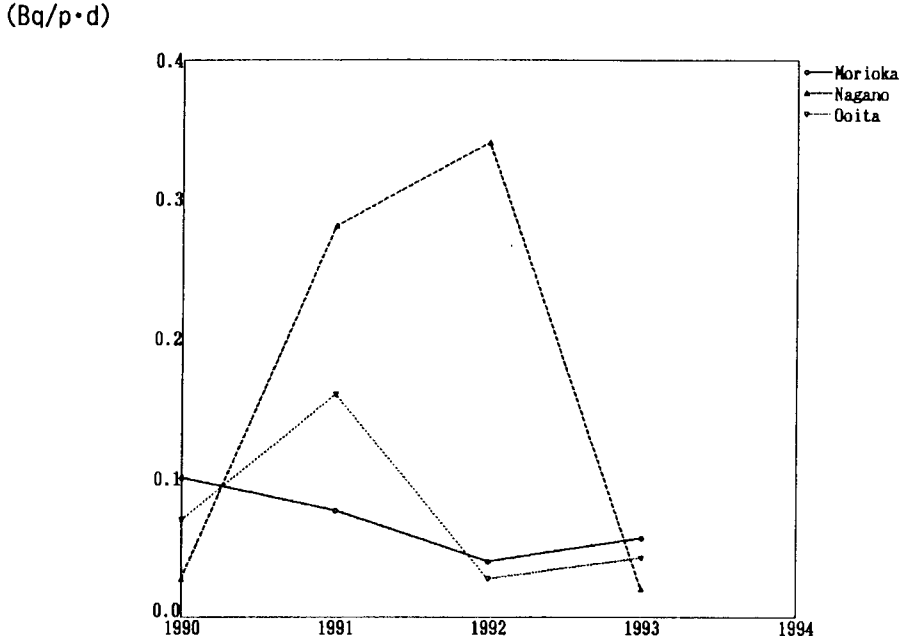
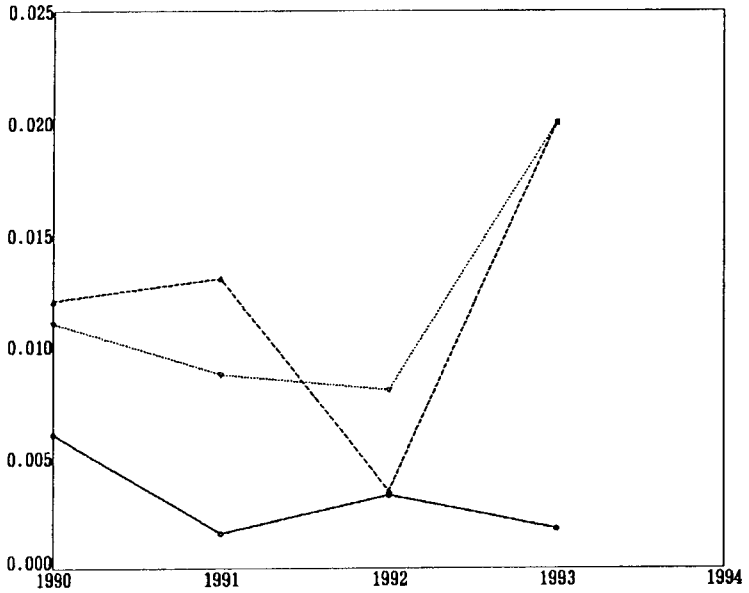


Fig. 1

＊ ＊ Rice (producing districts) ＊ ＊

<Strontium-90>

(Bq/kgwet)



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(Bq/kgwet)

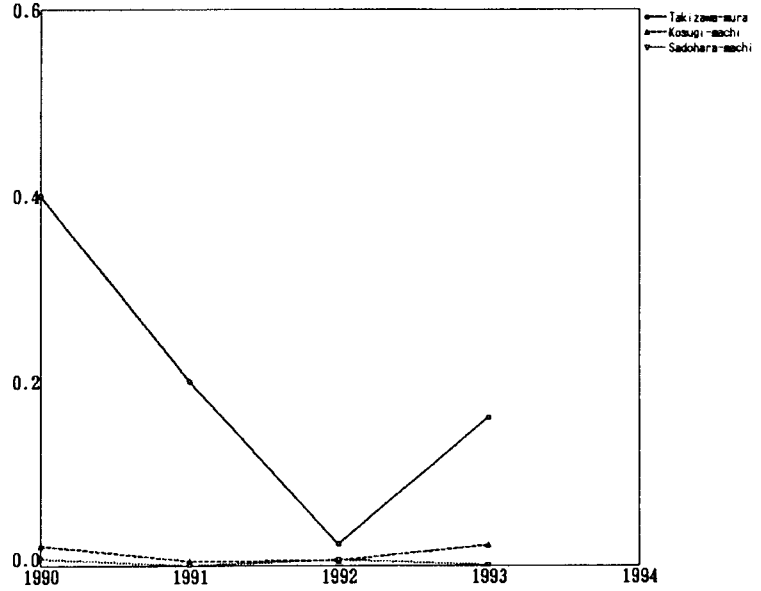

Fig.2—1

* * Rice (consuming districts) * *

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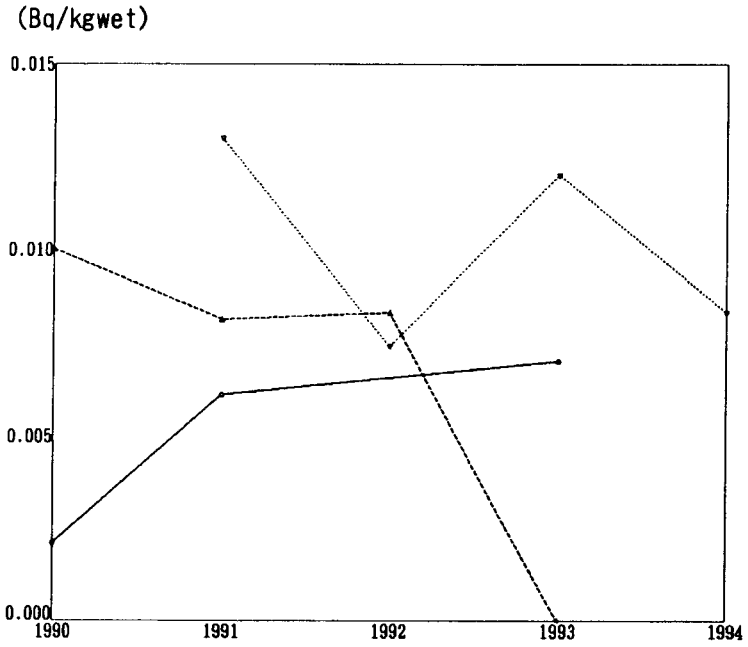

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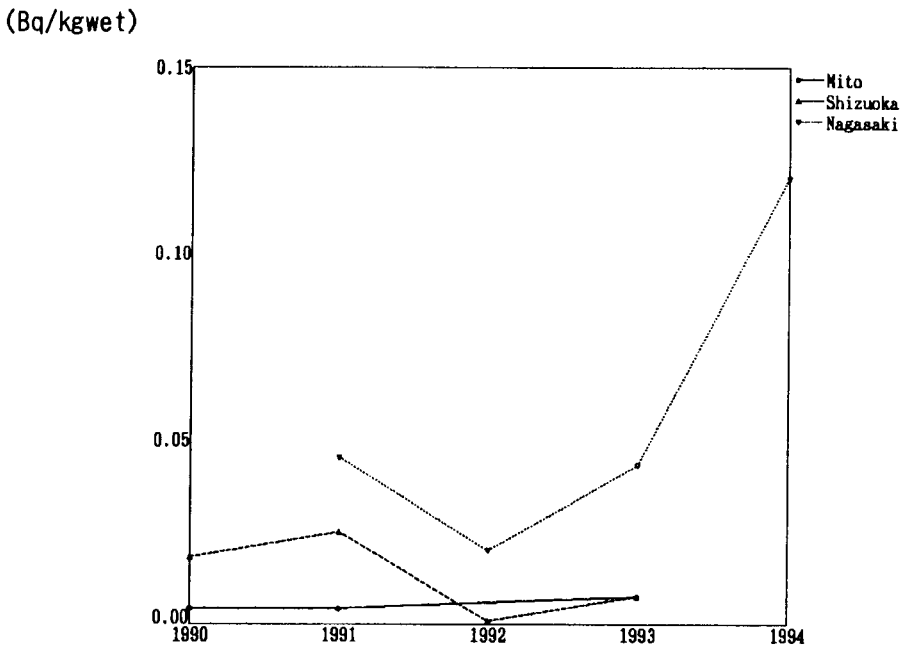

Fig.2—2

＊＊ Milk (producing districts for domestic program)

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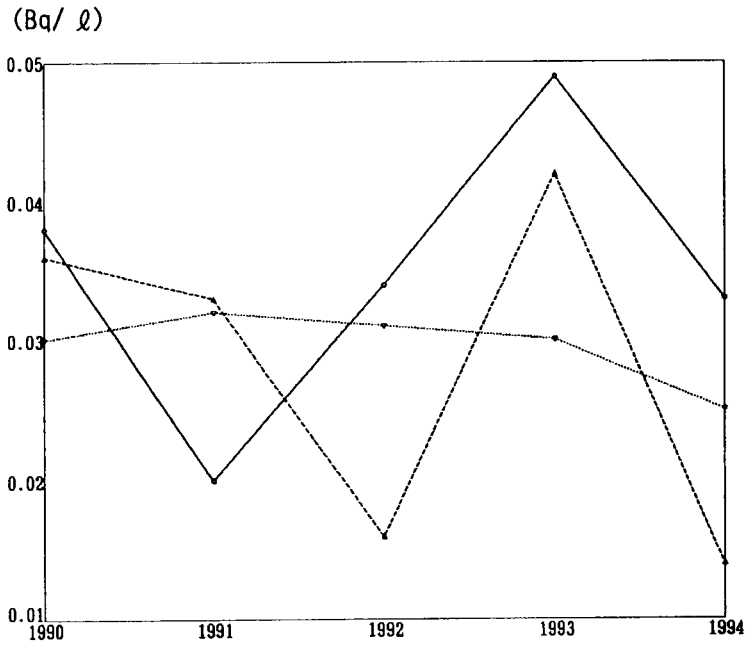

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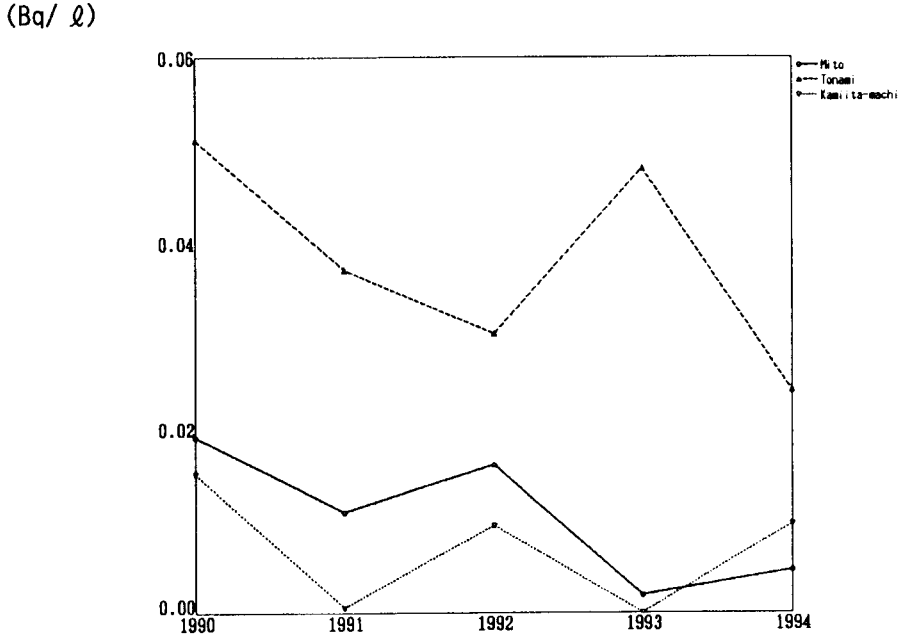

Fig. 3—1

* * Milk (producing districts for WHO program) * *

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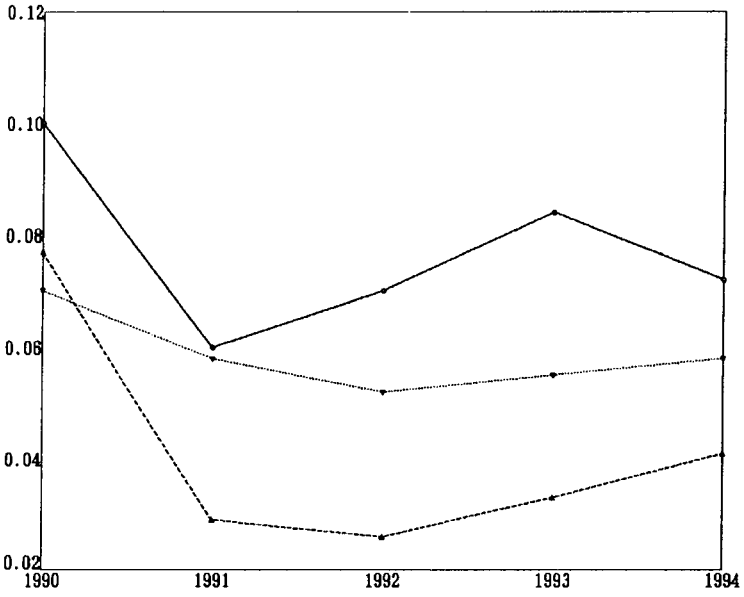

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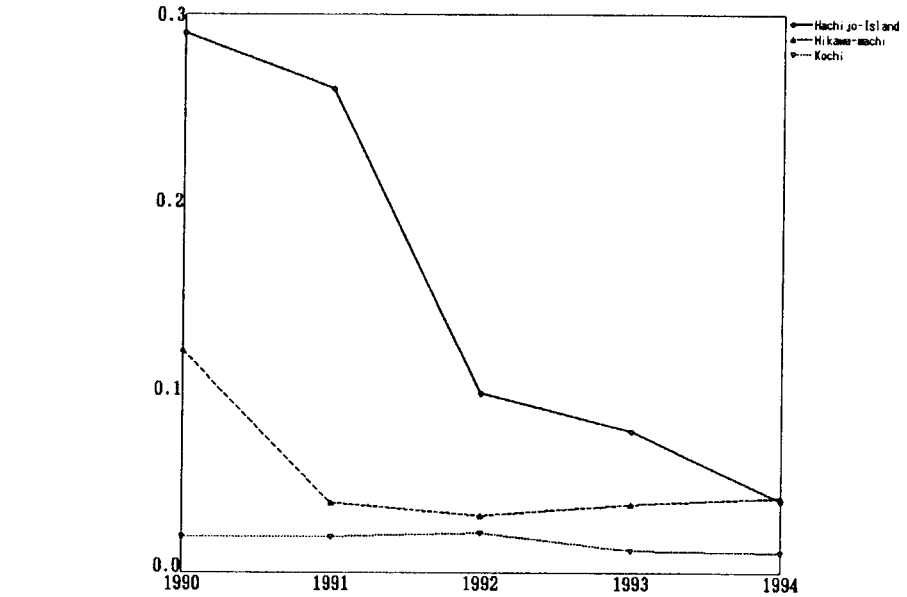

Fig. 3—2

＊ ＊ Milk (consuming districts) ＊ ＊

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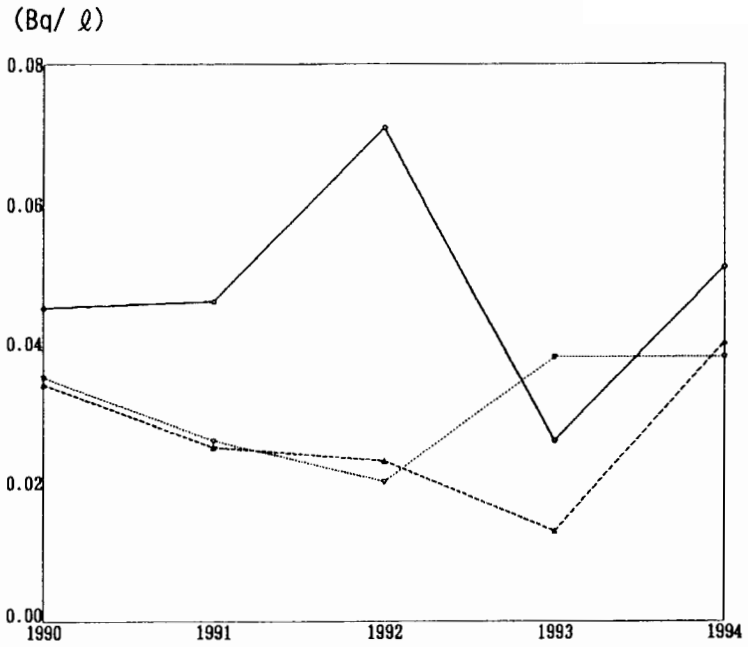

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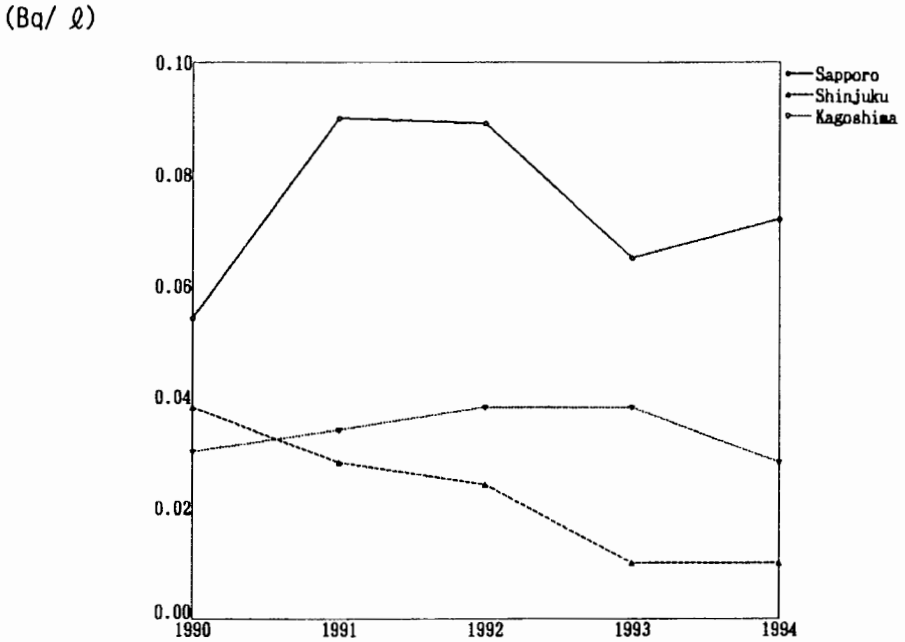

Fig. 3—3

* * Powdered Milk * *

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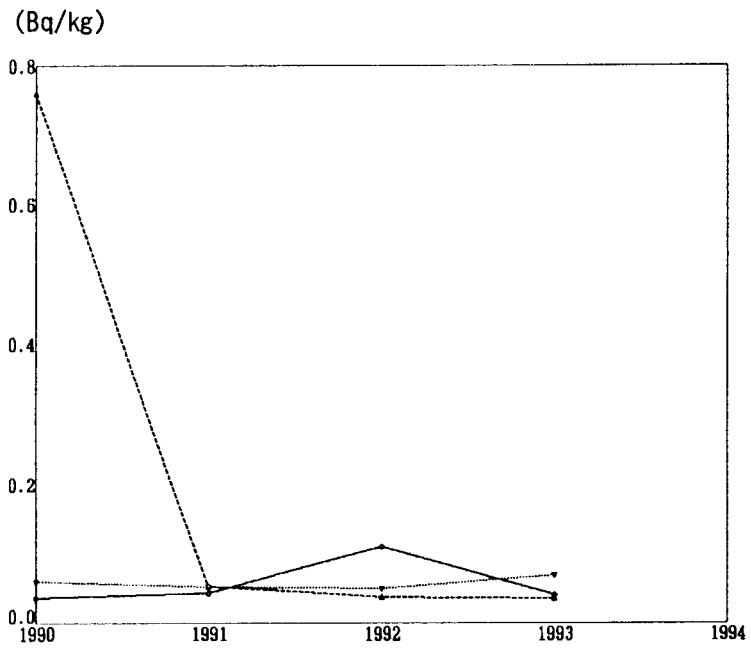

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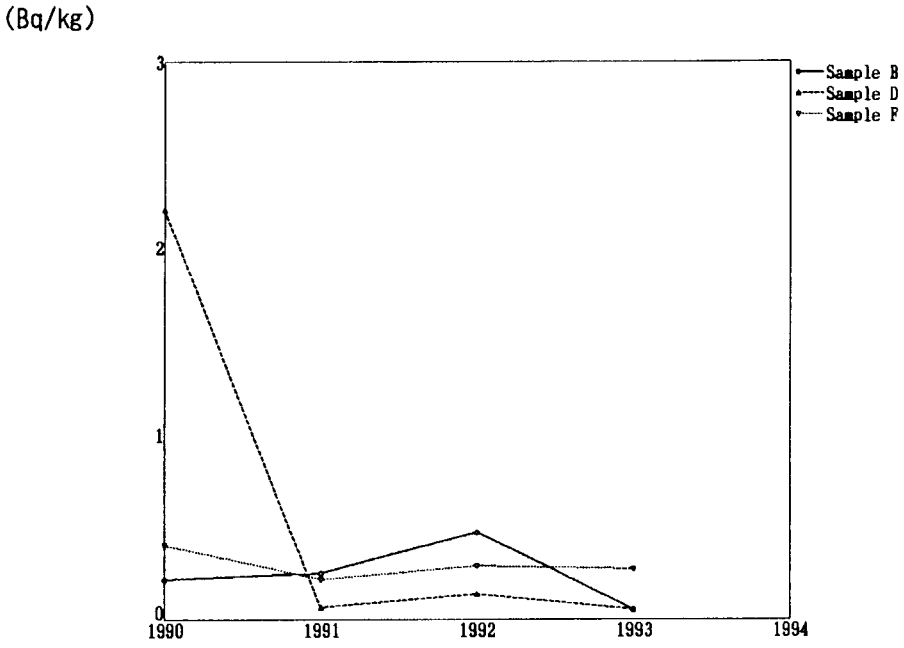

Fig. 3—4

* * Vegetables (producing districts) * *

(Japanese radish)

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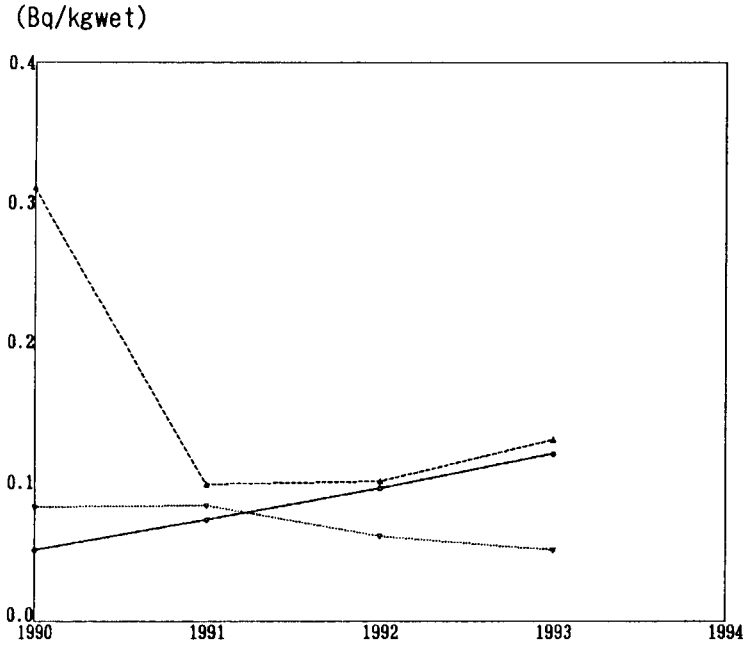

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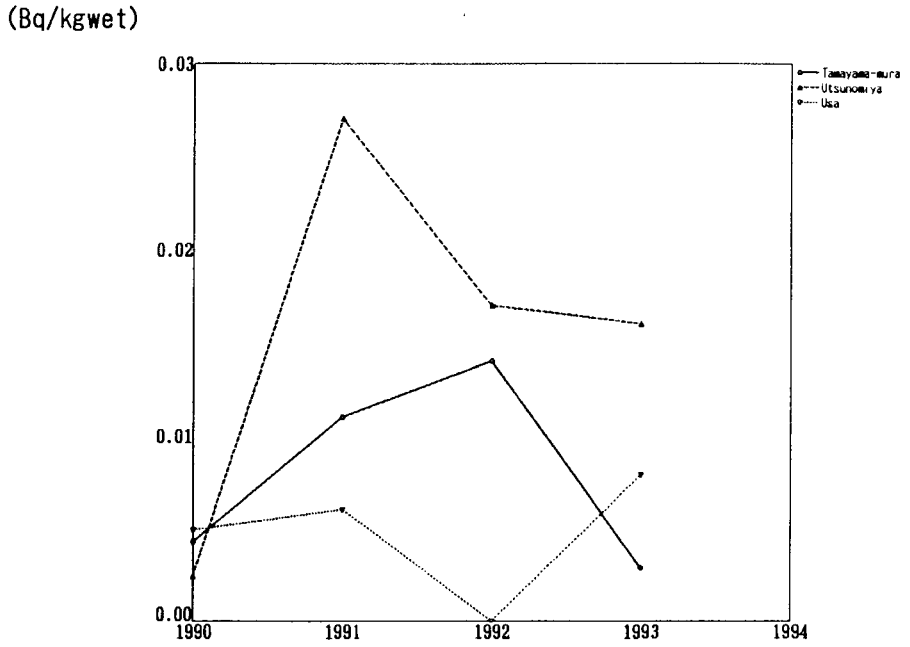

Fig. 4—1

* * Vegetables (consuming districts) * *

(Japanese radish)

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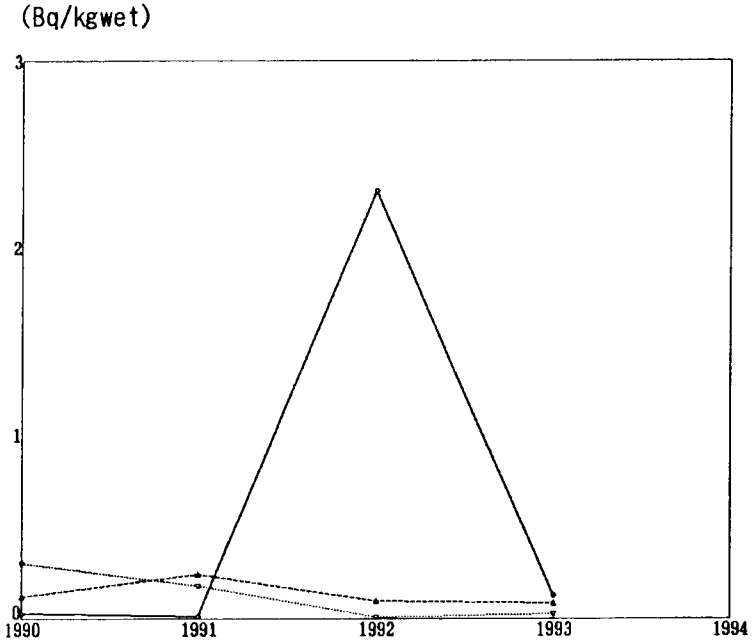

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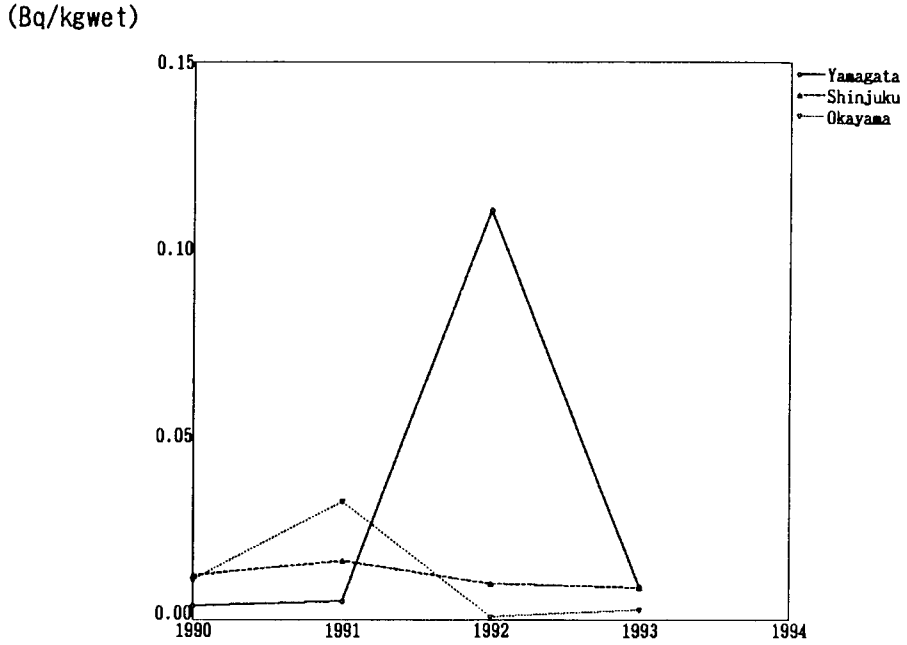

Fig. 4—2

* * Sea Fish * *

(Trachurus sp)

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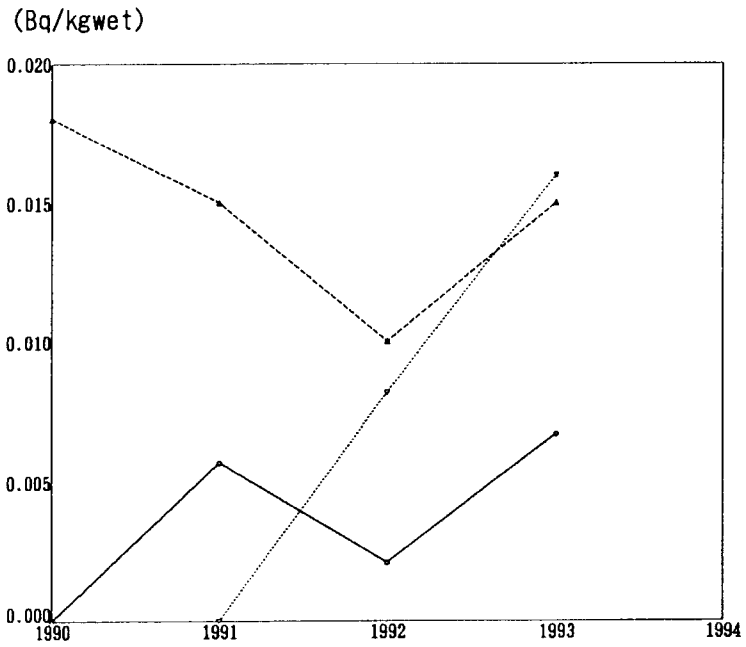

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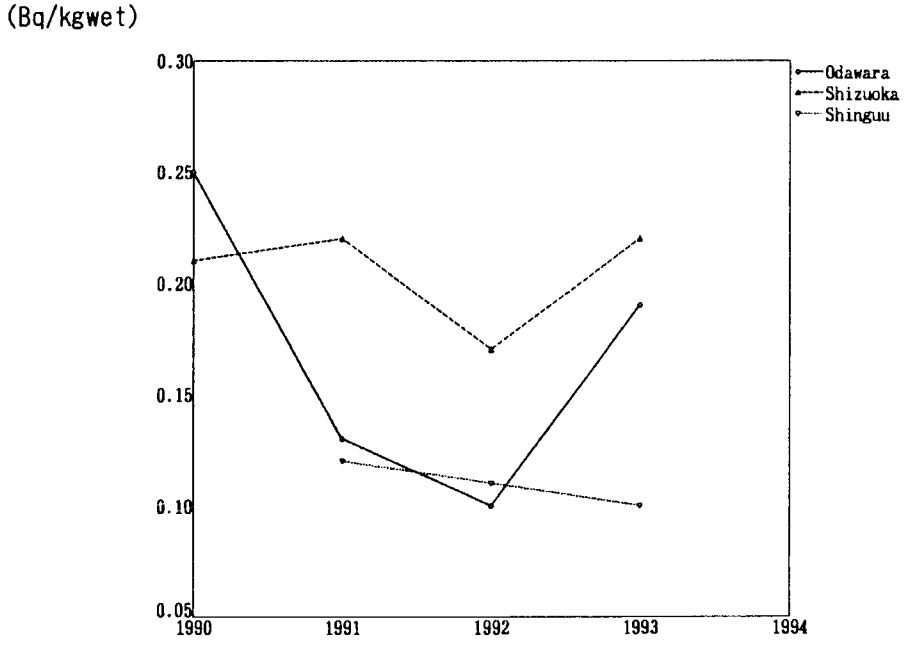

Fig. 5

* * Freshwater Fish * *

(Carassius auratus)

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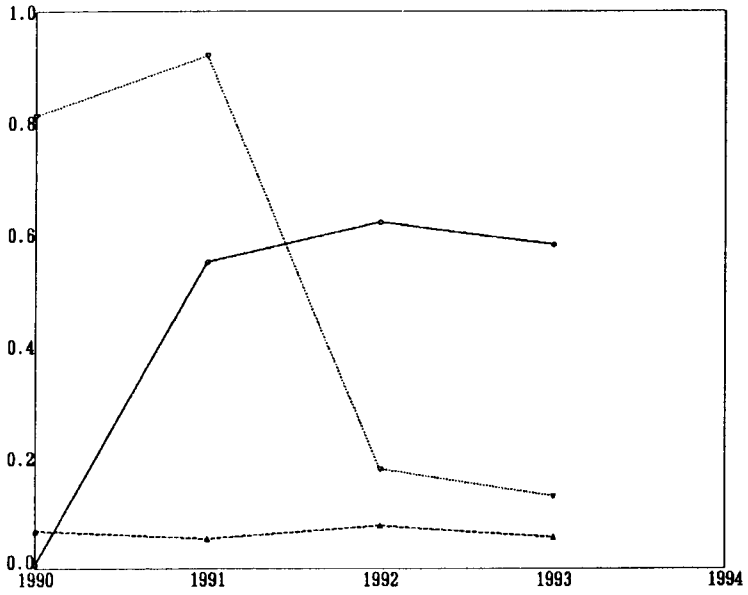

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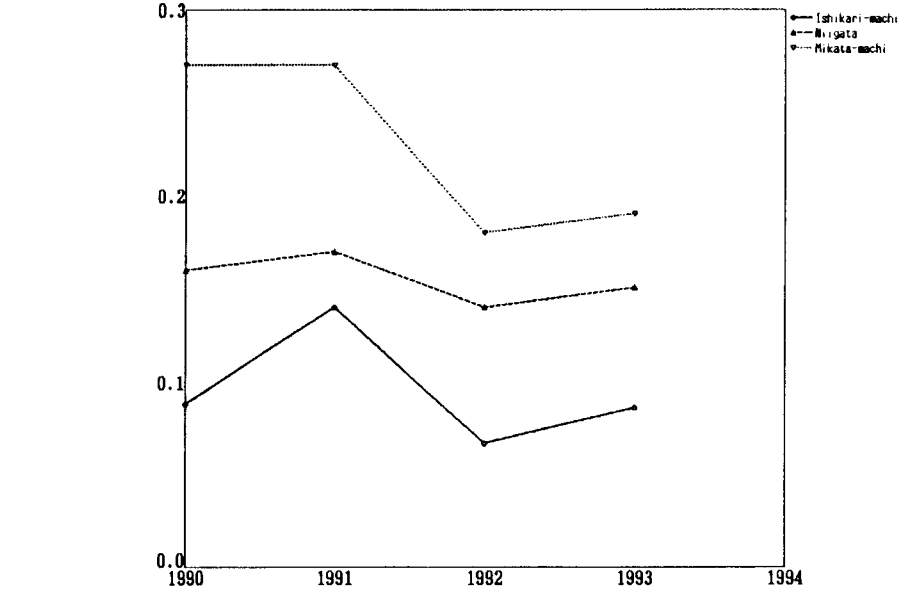


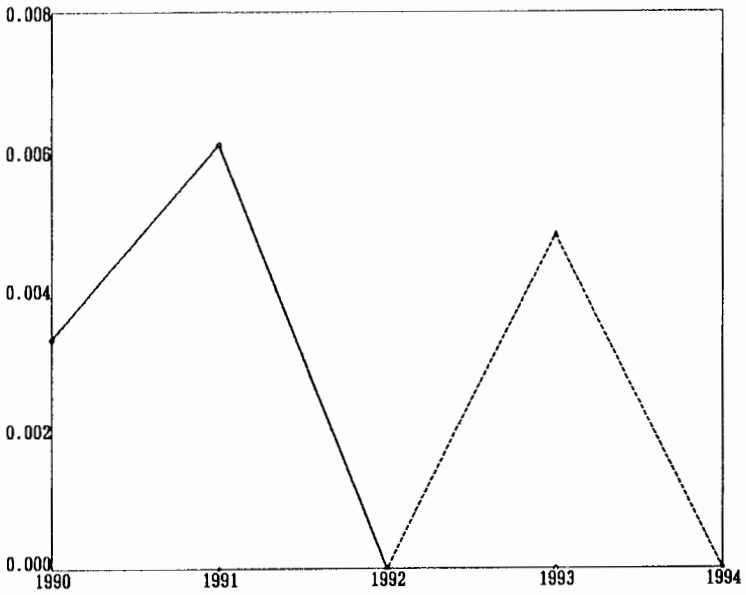
Fig. 6

* * Shellfish * *

(Patinopecten yessoensis)

<Strontium-90>

(Bq/kgwet)



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(Bq/kgwet)

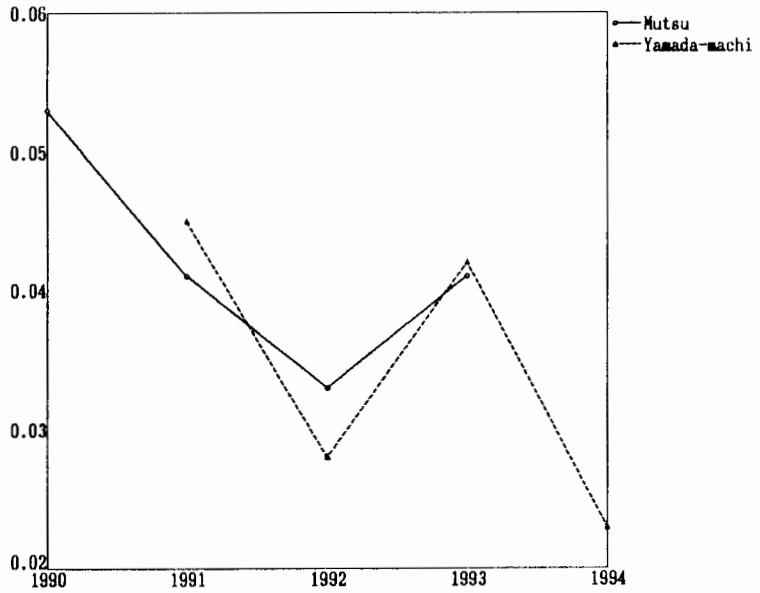
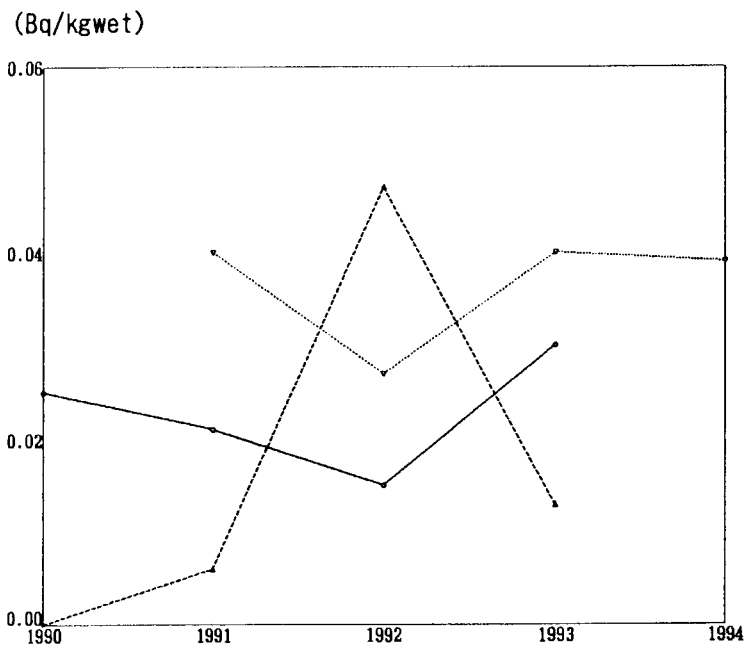


Fig. 7

* * Seaweeds * *

(Undaria pinnatifida)

<Strontium-90>



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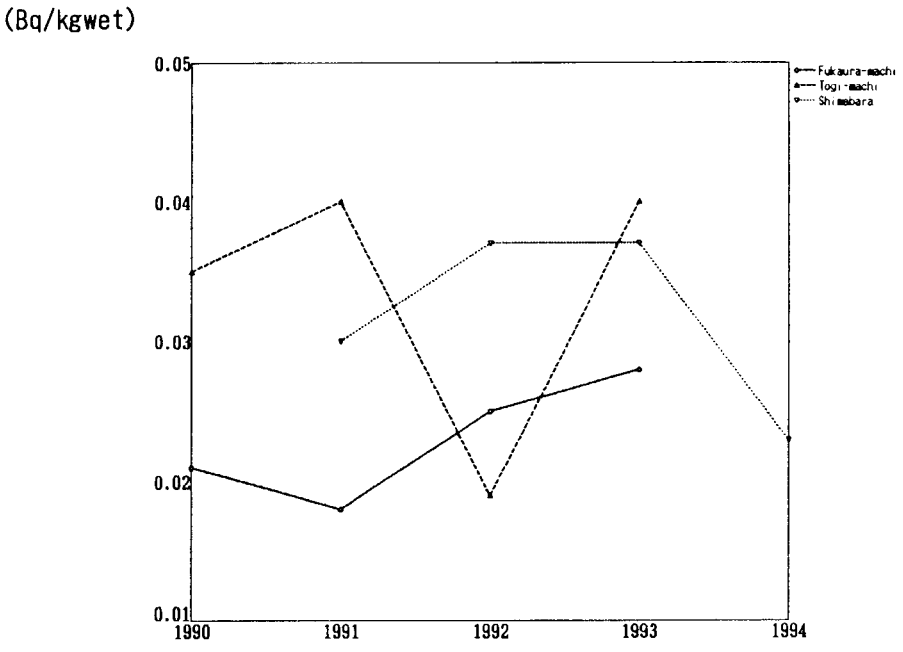

Fig. 8

* * Sampling Locations in Japan * *

1: Sapporo
2: Aomori
3: Morioka
4: Akita
5: Sendai
6: Yamagata
7: Fukushima
8: Niigata
9: Mito
10: Utsunomiya
11: Chiba
12: Urawa
13: Shinjuku
14: Maebashi
15: Nagano
16: Yokohama
17: Toyama
18: Kouhu
19: Kanazawa
20: Shizuoka
21: Gifu
22: Fukui
23: Nagoya
24: Tsu
25: Ootsu
26: Kyoto
27: Nara
28: Osaka
29: Tottori
30: Kobe
31: Wakayama
32: Okayama
33: Matsue
34: Tokushima
35: Takamatsu
36: Hiroshima
37: Kochi
38: Matsuyama
39: Yamaguchi
40: Ooita
41: Fukuoka
42: Saga
43: Kumamoto
44: Miyazaki
45: Nagasaki
46: Kagoshima
47: Naha