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RADIOACTIVITY SURVEY DATA in Japan

Part 2
= Dietary Materials =

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National Institute of Radiological Sciences
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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 a sampling 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. 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 (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 and cesium carriers were added to the filtered water sample. 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 surface disturbance caused by dust storms, inflow and out flow due to precipitation, etc.. 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, 0-5cm and 5-20cm. The soil lumps were crushed by hands and dried in a drying oven regulated 105°C. 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 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 1mℓ to 1ℓ 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 the sample in wet weight was spread on a stainless steel dish after removed of the pebbles, shells and other foreign materials, and dried in a drying oven regulated at 105°C.

(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 450°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 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 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 4kg 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 details 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	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)	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 0.25mm 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 was heated. 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 sieved sample 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 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-(4), 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 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 and the precipitate was filtered off, washed and counted.

(2) Cesium-137

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

After filtered off and washed with hydrochloric 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 cesium was 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 for extraction.
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 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 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-137per sample aliquot. From the results, concentrations of these nuclides in the original samples were calculated.

6. Results

(1) Strontium-90 and Cesium-137 in Total Diet
(from Oct. 1997 to Mar. 1998)
-continued from No. 123 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, 1997							
Kochi, KOCHI	15.3	390	2100	0.061 ± 0.0097	0.16 ± 0.025	0.032 ± 0.0061	0.015 ± 0.0029
Saga-machi, KOCHI	12.0	348	1480	0.031 ± 0.0050	0.090 ± 0.014	0.032 ± 0.0065	0.022 ± 0.0044
Ooita, OOITA	14.8	500	2110	0.055 ± 0.0060	0.11 ± 0.012	0.018 ± 0.0079	0.0083 ± 0.0037
Saiki, OOITA	12.7	566	1950	0.048 ± 0.0055	0.085 ± 0.0097	0.024 ± 0.0075	0.013 ± 0.0039
November, 1997							
Iwaizumi-machi, IWATE	15.2	617	1750	0.055 ± 0.010	0.090 ± 0.016	0.052 ± 0.0093	0.030 ± 0.0053
Yamagata, YAMAGATA	15.9	426	1670	0.079 ± 0.0071	0.19 ± 0.017	0.033 ± 0.0081	0.020 ± 0.0048
Sagae, YAMAGATA	13.4	340	1780	0.040 ± 0.0052	0.12 ± 0.015	0.023 ± 0.0075	0.013 ± 0.0042
Utsunomiya, TOCHIGI	14.2	509	2060	0.043 ± 0.0094	0.085 ± 0.018	0.062 ± 0.0097	0.030 ± 0.0047
Mooka, TOCHIGI	16.3	522	1990	0.051 ± 0.0099	0.098 ± 0.019	0.031 ± 0.0083	0.016 ± 0.0042
Ichihara, CHIBA	16.9	568	1890	0.041 ± 0.0061	0.072 ± 0.011	0.031 ± 0.0074	0.017 ± 0.0039
Chikura-machi, CHIBA	21.7	584	2730	0.065 ± 0.011	0.11 ± 0.020	0.022 ± 0.0053	0.0082 ± 0.0019
Yokohama, KANAGAWA	19.3	458	2390	0.060 ± 0.010	0.13 ± 0.022	0.063 ± 0.0097	0.026 ± 0.0040
Hiratsuka, KANAGAWA	18.9	565	2360	0.055 ± 0.0096	0.097 ± 0.017	0.046 ± 0.0086	0.019 ± 0.0037
Takaoka, TOYAMA	15.1	532	2130	0.052 ± 0.0060	0.097 ± 0.011	0.057 ± 0.0078	0.027 ± 0.0037
Takaoka, TOYAMA	14.9	567	1880	0.059 ± 0.0064	0.10 ± 0.011	0.024 ± 0.0057	0.013 ± 0.0030
Nagano, NAGANO	12.6	300	1730	0.031 ± 0.0059	0.010 ± 0.020	0.015 ± 0.0053	0.0088 ± 0.0031
Sanada-machi, NAGANO	20.6	783	2970	0.083 ± 0.0076	0.11 ± 0.010	0.040 ± 0.0069	0.013 ± 0.0023
Hamaoka-machi, SHIZUOKA	13.6	508	1740	0.048 ± 0.0096	0.094 ± 0.019	0.025 ± 0.0058	0.014 ± 0.0033
Nagoya, AICHI	16.0	619	2240	0.034 ± 0.0082	0.054 ± 0.013	0.052 ± 0.0089	0.023 ± 0.0040
Shinshiro, AICHI	16.6	613	2060	0.063 ± 0.0070	0.10 ± 0.011	0.048 ± 0.0074	0.023 ± 0.0036
Tsu, MIE	13.8	364	1660	0.036 ± 0.0086	0.10 ± 0.024	0.028 ± 0.0080	0.017 ± 0.0048
Kashihara, NARA	13.0	623	1780	0.049 ± 0.0069	0.079 ± 0.011	0.039 ± 0.0064	0.022 ± 0.0036

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)
Kashima-machi, SHIMANE	16.8	1220	2310	0.078 ± 0.0074	0.064 ± 0.01061	0.024 ± 0.0062	0.010 ± 0.0027
Okayama, OKAYAMA	18.0	716	2270	0.075 ± 0.0072	0.10 ± 0.010	0.017 ± 0.0058	0.074 ± 0.0026
Kamisaibara-mura, OKAYAMA	13.1	486	1370	0.083 ± 0.0075	0.17 ± 0.015	0.068 ± 0.0088	0.050 ± 0.0064
Hiroshima, HIROSHIMA	10.8	498	1340	0.033 ± 0.0085	0.067 ± 0.017	0.024 ± 0.0059	0.018 ± 0.0044
Kamiita-machi, TOKUSHIMA	14.7	450	1720	0.021 ± 0.0089	0.047 ± 0.020	0.021 ± 0.0089	0.012 ± 0.0052
Matsuyama, EHIME	13.3	487	1940	0.033 ± 0.0057	0.069 ± 0.012	0.031 ± 0.0063	0.016 ± 0.0032
Ikata-machi, EHIME	9.78	397	1090	0.044 ± 0.0062	0.11 ± 0.016	0.0077 ± 0.0043	0.0070 ± 0.0039
Dazaifu, FUKUOKA	14.6	512	2090	0.047 ± 0.0093	0.093 ± 0.018	0.024 ± 0.0075	0.012 ± 0.0036
Fukuoka, FUKUOKA	12.1	370	1330	0.026 ± 0.0052	0.070 ± 0.014	0.013 ± 0.0050	0.0099 ± 0.0038
Saga, SAGA	13.7	460	1660	0.035 ± 0.010	0.076 ± 0.022	0.040 ± 0.0074	0.024 ± 0.0044
Nagasaki, NAGASAKI	17.0	703	2090	0.073 ± 0.011	0.010 ± 0.016	0.032 ± 0.0078	0.015 ± 0.0037
Matsuura, NAGASAKI	13.7	516	2000	0.055 ± 0.010	0.11 ± 0.019	0.019 ± 0.0072	0.0096 ± 0.0036
Sendai, MIYAGI	10.3	330	1600	0.039 ± 0.0080	0.12 ± 0.024	0.039 ± 0.0064	0.024 ± 0.0040
Ookuchi, KAGOSHIMA	12.7	394	1510	0.048 ± 0.0063	0.12 ± 0.016	0.032 ± 0.0063	0.022 ± 0.0042
December, 1997							
Sapporo, HOKKAIDOU	19.2	657	2930	0.053 ± 0.0098	0.080 ± 0.015	0.054 ± 0.0093	0.018 ± 0.0032
Iwanai-machi, HOKKAIDOU	12.9	763	1780	0.056 ± 0.010	0.073 ± 0.013	0.031 ± 0.0081	0.018 ± 0.0045
Aomori, AOMORI	17.4	491	1790	0.037 ± 0.010	0.075 ± 0.021	0.040 ± 0.0078	0.022 ± 0.0044
Ajigasawa-machi, AOMORI	16.9	630	1810	0.072 ± 0.014	0.11 ± 0.022	0.037 ± 0.0072	0.021 ± 0.0040
Morioka, IWATE	15.6	568	1840	0.035 ± 0.0086	0.061 ± 0.015	0.038 ± 0.0070	0.021 ± 0.0038
Ishinomaki, MIYAGI	15.0	708	1860	0.037 ± 0.0060	0.053 ± 0.0084	0.030 ± 0.0068	0.016 ± 0.0036
Onagawa-machi, MIYAGI	14.1	503	1610	0.033 ± 0.0053	0.065 ± 0.011	0.030 ± 0.0070	0.019 ± 0.0043
Akita, AKITA	12.7	334	1920	0.057 ± 0.0068	0.17 ± 0.020	0.019 ± 0.0051	0.010 ± 0.0027
Akita, AKITA	14.3	488	1710	0.059 ± 0.0071	0.12 ± 0.014	0.054 ± 0.0073	0.032 ± 0.0043
Fukushima, FUKUSHIMA	17.3	555	2470	0.070 ± 0.011	0.13 ± 0.020	0.098 ± 0.010	0.040 ± 0.0042

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)	
Ookuma-machi, FUKUSHIMA	19.0	905	2290	0.085	± 0.012	0.094	± 0.013	0.065	± 0.0094	0.028	± 0.0041
Mito, IBARAKI	19.7	615	2780	0.074	± 0.0077	0.12	± 0.012	0.050	± 0.0073	0.018	± 0.0026
Tokai-mura, IBARAKI	15.5	468	1970	0.055	± 0.00669	0.12	± 0.015	0.026	± 0.0055	0.013	± 0.0028
Maebashi, GUNMA	14.0	517	2230	0.056	± 0.011	0.11	± 0.021	0.055	± 0.0085	0.024	± 0.0038
Nakanojou-machi, GUNMA	15.0	605	2050	0.059	± 0.0065	0.098	± 0.011	0.026	± 0.0062	0.013	± 0.0030
Urawa, SAITAMA	15.7	499	2580	0.043	± 0.0065	0.086	± 0.013	0.057	± 0.0075	0.022	± 0.0029
Kumagaya, SAITAMA	16.0	848	2130	0.045	± 0.0065	0.053	± 0.0076	0.021	± 0.0059	0.0099	± 0.0028
Shinjuku, TOKYO	15.6	391	1650	0.041	± 0.0096	0.11	± 0.025	0.034	± 0.0060	0.020	± 0.0037
Hachijou-machi, TOKYO	14.4	522	1870	0.030	± 0.0094	0.057	± 0.018	0.054	± 0.0072	0.029	± 0.0038
Nishikawa-machi, NIIGATA	23.3	394	3440	0.056	± 0.016	0.071	± 0.020	0.028	± 0.0067	0.0082	± 0.0019
Kashiwazaki, NIIGATA	17.7	493	2150	0.066	± 0.012	0.13	± 0.024	0.033	± 0.0068	0.015	± 0.0031
Kanazawa, ISHIKAWA	20.9	524	2390	0.050	± 0.0099	0.096	± 0.019	0.11	± 0.011	0.046	± 0.0048
Yoshinodani-mura, ISHIKAWA	13.5	475	2030	0.056	± 0.0094	0.12	± 0.020	0.023	± 0.0074	0.011	± 0.0037
Fukui, FUKUI	16.4	339	1950	0.051	± 0.0093	0.15	± 0.027	0.028	± 0.0082	0.015	± 0.0042
Tsuruga, FUKUI	15.9	685	2020	0.072	± 0.011	0.11	± 0.015	0.030	± 0.0078	0.015	± 0.0038
Koufu, YAMANASHI	17.8	514	1840	0.029	± 0.0083	0.056	± 0.016	0.063	± 0.0093	0.034	± 0.0050
Nirasaki, YAMANASHI	14.6	818	1840	0.043	± 0.0058	0.052	± 0.0071	0.042	± 0.0074	0.023	± 0.0040
Gifu, GIFU	17.8	491	2120	0.063	± 0.010	0.13	± 0.020	0.051	± 0.0089	0.024	± 0.0042
Takayama, GIFU	16.6	789	2240	0.064	± 0.010	0.081	± 0.013	0.029	± 0.0074	0.013	± 0.0033
Shizuoka, SHIZUOKA	15.6	747	2050	0.077	± 0.011	0.10	± 0.015	0.041	± 0.0073	0.020	± 0.0035
Ootsu, SHIGA	16.1	561	2480	0.042	± 0.0089	0.075	± 0.016	0.024	± 0.0069	0.0095	± 0.0028
Imazu-machi, SHIGA	15.4	713	2220	0.060	± 0.010	0.084	± 0.014	0.049	± 0.0087	0.022	± 0.0039
Owase, MIE	13.1	638	1680	0.052	± 0.0097	0.081	± 0.015	0.043	± 0.0087	0.026	± 0.0052
Kyoto, KYOTO	14.9	482	1500	0.025	± 0.0087	0.053	± 0.018	0.036	± 0.0065	0.024	± 0.0044
Maizuru, KYOTO	18.6	619	1990	0.057	± 0.011	0.093	± 0.018	0.064	± 0.0083	0.032	± 0.0042

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)
Osaka, OSAKA	16.9	882	2720	0.054 ± 0.0096	0.062 ± 0.011	0.051 ± 0.0095	0.019 ± 0.0035
Sakai, OSAKA	16.9	515	2450	0.079 ± 0.0068	0.15 ± 0.013	0.032 ± 0.0089	0.013 ± 0.0037
Kakogawa, HYOUGO	13.4	536	1760	0.037 ± 0.0048	0.069 ± 0.0090	0.027 ± 0.0069	0.015 ± 0.0039
Hamasaka-machi, HYOUGO	15.1	689	1790	0.061 ± 0.0062	0.088 ± 0.0090	0.031 ± 0.0076	0.017 ± 0.0042
Gojou, NARA	13.3	1090	2050	0.051 ± 0.0069	0.047 ± 0.0063	0.018 ± 0.0054	0.0090 ± 0.0026
Wakayama, WAKAYAMA	13.3	481	1600	0.041 ± 0.0063	0.085 ± 0.013	0.034 ± 0.0074	0.021 ± 0.0046
Shinguu, WAKAYAMA	13.6	316	1530	0.047 ± 0.011	0.15 ± 0.035	0.043 ± 0.0078	0.028 ± 0.0051
Matsue, SHIMANE	22.4	860	2820	0.12 ± 0.009	0.14 ± 0.010	0.036 ± 0.0073	0.013 ± 0.0026
Miyoshi, HIROSHIMA	12.7	307	1280	0.053 ± 0.010	0.17 ± 0.033	0.017 ± 0.0049	0.013 ± 0.0038
Yamaguchi, YAMAGUCHI	13.8	408	1380	0.051 ± 0.0057	0.12 ± 0.014	0.023 ± 0.0073	0.016 ± 0.0053
Ajisu-machi, YAMAGUCHI	15.3	632	1760	0.039 ± 0.0051	0.061 ± 0.0081	0.016 ± 0.0072	0.0089 ± 0.0041
Tokushima, TOKUSHIMA	17.2	451	1980	0.038 ± 0.011	0.085 ± 0.023	0.014 ± 0.0048	0.0069 ± 0.0024
Takamatsu, KAGAWA	15.3	608	2020	0.052 ± 0.0062	0.085 ± 0.010	0.026 ± 0.0056	0.013 ± 0.0028
Marugame, KAGAWA	14.9	485	2270	0.046 ± 0.0060	0.096 ± 0.012	0.032 ± 0.0064	0.014 ± 0.0028
Karatsu, SAGA	16.2	581	1860	0.028 ± 0.0093	0.048 ± 0.016	0.025 ± 0.0070	0.013 ± 0.0038
Kumamoto, KUMAMOTO	16.1	476	2400	0.040 ± 0.0094	0.085 ± 0.020	0.052 ± 0.0078	0.022 ± 0.0032
Tomiai-machi, KUMAMOTO	14.4	504	2000	0.061 ± 0.011	0.12 ± 0.021	0.027 ± 0.0067	0.013 ± 0.0034
Miyazaki, MIYAZAKI	14.8	362	2040	0.068 ± 0.0078	0.19 ± 0.022	0.029 ± 0.0063	0.014 ± 0.0031
Takachiho-machi, MIYAZAKI	14.6	601	2630	0.075 ± 0.0078	0.13 ± 0.013	0.036 ± 0.0065	0.014 ± 0.0025
January, 1998							
Naha, Okinawa	16.1	450	2070	0.056 ± 0.011	0.13 ± 0.024	0.026 ± 0.0061	0.012 ± 0.0030
Ginowan, Okinawa	14.1	633	2070	0.049 ± 0.0060	0.078 ± 0.0094	0.028 ± 0.0061	0.013 ± 0.0029

(2)-1 Strontium-90 and Cesium-137 in Rice(producting districts)
(from Oct. 1997 to Mar. 1998)
-continued from No. 123 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, 1997							
Mito, IBARAKI	0.553	0.035	0.702	0.0006 ± 0.0047	0.02 ± 0.14	0.039 ± 0.0064	0.056 ± 0.0091
Maki-machi, NIIGATA	0.479	0.027	0.742	0.0052 ± 0.0035	0.20 ± 0.13	0.015 ± 0.0061	0.020 ± 0.0082
Kosugi-machi, TOYAMA	0.505	0.030	0.833	0.022 ± 0.0083	0.74 ± 0.28	0.013 ± 0.0070	0.015 ± 0.0084
Toyosina-machi, NAGANO	0.495	0.036	0.668	0.0046 ± 0.0051	0.13 ± 0.14	0.0017 ± 0.0056	0.0025 ± 0.0084
Shiga-machi, SHIGA	0.573	0.036	0.934	0.0067 ± 0.0032	0.19 ± 0.091	0.015 ± 0.0046	0.016 ± 0.0049
Kashihara, NARA	0.749	0.030	0.996	0.0015 ± 0.0064	0.05 ± 0.21	0.0000 ± 0.0068	0.0000 ± 0.0068
Miki-machi, KAGAWA	0.543	0.022	0.749	0.015 ± 0.0065	0.70 ± 0.30	0.0026 ± 0.0032	0.0034 ± 0.0043
Saga, SAGA	0.646	0.020	1.09	0.0055 ± 0.0031	0.28 ± 0.16	0.0045 ± 0.0039	0.0042 ± 0.0036
Koushi-machi, KUMAMOTO	0.590	0.020	0.732	0.0007 ± 0.0055	0.03 ± 0.27	0.0091 ± 0.0039	0.012 ± 0.0053
November, 1997							
Ishikari-machi, HOKKAIDOU	0.547	0.021	0.968	0.011 ± 0.0034	0.52 ± 0.17	0.0058 ± 0.0036	0.0060 ± 0.0037
Takizawa-mura, IWATE	0.546	0.025	0.956	0.0039 ± 0.0027	0.15 ± 0.11	0.13 ± 0.010	0.014 ± 0.011
Ishinomaki, MIYAGI	0.573	0.037	0.768	0.0077 ± 0.0048	0.21 ± 0.13	0.0069 ± 0.0035	0.0090 ± 0.0046
Fukushima, FUKUSHIMA	0.717	0.030	1.14	0.010 ± 0.0031	0.33 ± 0.10	0.0095 ± 0.0044	0.0084 ± 0.0038
Yamaguchi, YAMAGUCHI	0.506	0.023	0.794	0.0000 ± 0.0037	0.00 ± 0.16	0.036 ± 0.0057	0.045 ± 0.0071
Usa, OOITA	0.474	0.013	0.811	0.0010 ± 0.0028	0.08 ± 0.22	0.0000 ± 0.0032	0.0000 ± 0.0040
December, 1997							
Utsunomiya, TOCHIGI	0.664	0.028	0.704	0.0043 ± 0.0056	0.15 ± 0.20	0.011 ± 0.0044	0.015 ± 0.0063
Takane-machi, YAMANASHI	0.578	0.025	0.850	0.0014 ± 0.0032	0.05 ± 0.13	0.0000 ± 0.0052	0.0000 ± 0.0061
Kasai, HYOUGO	0.508	0.031	0.701	0.0046 ± 0.0039	0.15 ± 0.12	0.0000 ± 0.0022	0.0000 ± 0.0031
Ishii-machi, TOKUSHIMA	0.529	0.036	0.762	0.0070 ± 0.0040	0.19 ± 0.1	0.0018 ± 0.0065	0.0024 ± 0.0086
Chikushino, FUKUOKA	0.530	0.033	0.753	0.0065 ± 0.0057	0.20 ± 0.18	0.066 ± 0.0097	0.087 ± 0.013

(2)-2 Strontium-90 and Cesium-137 in Rice(consuming districts)
(from Oct. 1997 to Mar. 1998)
-continued from No, 123 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, 1997							
Akita, AKITA	0.505	0.029	0.571	0.019 ± 0.0059	0.65 ± 0.20	0.048 ± 0.0065	0.084 ± 0.011
Mito, IBARAKI	0.493	0.022	0.735	0.0034 ± 0.0054	0.15 ± 0.24	0.0072 ± 0.0042	0.0098 ± 0.0057
Shinjuku, TOKYO	0.544	0.027	0.849	0.0028 ± 0.0045	0.10 ± 0.17	0.014 ± 0.0047	0.016 ± 0.0055
Niigata, NIIGATA	0.396	0.035	0.535	0.015 ± 0.0053	0.43 ± 0.15	0.026 ± 0.0051	0.049 ± 0.011
Fukui, FUKUI	0.520	0.024	0.848	0.0032 ± 0.0048	0.14 ± 0.20	0.0000 ± 0.0033	0.0000 ± 0.0039
Hiroshima, HIROSHIMA	0.557	0.027	0.730	0.014 ± 0.0036	0.52 ± 0.13	0.0048 ± 0.0036	0.0066 ± 0.0050
Matsuyama, EHIME	0.524	0.022	0.886	0.0000 ± 0.0047	0.00 ± 0.21	0.0036 ± 0.0034	0.0041 ± 0.0038
November, 1997							
Sapporo, HOKKAIDOU	0.600	0.023	1.09	0.0068 ± 0.0034	0.30 ± 0.15	0.0055 ± 0.0040	0.0050 ± 0.0036
Yamagata, YAMAGATA	0.525	0.029	0.767	0.0074 ± 0.0030	0.25 ± 0.10	0.012 ± 0.0042	0.015 ± 0.0055
Yokohama, KANAGAWA	0.510	0.029	0.755	0.0088 ± 0.0055	0.30 ± 0.19	0.018 ± 0.0045	0.024 ± 0.0060
Shizuoka, SHIZUOKA	0.398	0.029	0.685	0.0038 ± 0.0029	0.13 ± 0.099	0.0065 ± 0.0053	0.0095 ± 0.0078
Kyoto, KYOTO	0.486	0.026	0.797	0.0047 ± 0.0035	0.18 ± 0.13	0.0042 ± 0.0057	0.0053 ± 0.0072
Osaka, OSAKA	0.486	0.027	0.744	0.0047 ± 0.0057	0.17 ± 0.21	0.012 ± 0.0045	0.016 ± 0.0061
Kagoshima, KAGOSHIMA	0.512	0.026	0.794	0.014 ± 0.0052	0.55 ± 0.20	0.41 ± 0.017	0.51 ± 0.021
Yonagusuku-machi, Okinawa	0.552	0.027	0.988	0.0000 ± 0.0047	0.00 ± 0.18	0.021 ± 0.0051	0.021 ± 0.0051
December, 1997							
Urawa, SAITAMA	0.457	0.032	0.727	0.0000 ± 0.0041	0.00 ± 0.13	0.010 ± 0.0039	0.014 ± 0.0054
Nagoya, AICHI	0.631	0.028	0.820	0.011 ± 0.0032	0.37 ± 0.11	0.0011 ± 0.0035	0.0013 ± 0.0052
Kobe, HYOUGO	0.472	0.028	0.632	0.0052 ± 0.0043	0.18 ± 0.15	0.013 ± 0.0040	0.020 ± 0.0064
Tottori, TOTTORI	0.535	0.034	0.717	0.024 ± 0.0076	0.70 ± 0.22	0.11 ± 0.012	0.15 ± 0.016
Matsue, SHIMANE	0.533	0.027	0.709	0.0038 ± 0.0046	0.14 ± 0.17	0.021 ± 0.0052	0.029 ± 0.0074
Seto-machi, OKAYAMA	0.424	0.031	0.759	0.0000 ± 0.0048	0.00 ± 0.16	0.0000 ± 0.0049	0.0000 ± 0.0065
Kasuga, FUKUOKA	0.503	0.028	0.850	0.0028 ± 0.0060	0.10 ± 0.21	0.015 ± 0.0070	0.017 ± 0.0083
January, 1998							
Hirosaki, AOMORI	0.470	0.032	0.921	0.0000 ± 0.0054	0.00 ± 0.17	0.045 ± 0.0088	0.048 ± 0.0095

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Kochi, KOCHI	0.503	0.032	0.709	0.0081 ± 0.0045	0.26 ± 0.14	0.0094 ± 0.0034	0.013 ± 0.0048
Nagasaki, NAGASAKI	0.432	0.029	0.708	0.0034 ± 0.0032	0.12 ± 0.11	0.019 ± 0.0068	0.027 ± 0.0096

(3)-1 Strontium-90 and Cesium-137 in Milk(producting districts for domestic program)
(from Oct. 1997 to Mar. 1998)
-continued from No, 123 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, 1997							
Shinguu, WAKAYAMA	6.72	1.03	1.37	0.014 ± 0.0061	0.014 ± 0.0059	0.017 ± 0.0062	0.013 ± 0.0045
Kamiita-machi, TOKUSHIMA	7.59	1.22	1.52	0.023 ± 0.0091	0.019 ± 0.0074	0.0024 ± 0.0046	0.0016 ± 0.0030
Yamato-machi, SAGA	7.53	1.16	1.60	0.032 ± 0.0048	0.028 ± 0.0041	0.0073 ± 0.0047	0.0046 ± 0.0029
Febraly, 1998							
Aomori, AOMORI	7.45	1.08	1.55	0.034 ± 0.0056	0.031 ± 0.0052	0.020 ± 0.0054	0.013 ± 0.0035
Takizawa-mura, IWATE	7.58	1.17	1.69	0.042 ± 0.0054	0.036 ± 0.0046	0.089 ± 0.0088	0.052 ± 0.0052
Mito, IBARAKI	7.69	1.15	1.53	0.040 ± 0.0055	0.035 ± 0.0048	0.0018 ± 0.0045	0.0012 ± 0.0030
Nishinasuno-machi, TOCHIGI	7.21	1.07	1.61	0.019 ± 0.0078	0.018 ± 0.0073	0.015 ± 0.0054	0.0094 ± 0.0033
Fujimi-mura, GUNMA	6.77	1.03	1.62	0.015 ± 0.0041	0.015 ± 0.0040	0.0083 ± 0.0045	0.0051 ± 0.0028
Yachimata, CHIBA	7.61	1.08	1.58	0.028 ± 0.0053	0.026 ± 0.0049	0.018 ± 0.0051	0.012 ± 0.0032
Tonami, TOYAMA	7.31	1.08	1.45	0.020 ± 0.0046	0.018 ± 0.0042	0.030 ± 0.0063	0.021 ± 0.0043
Oshimizu-machi, ISHIKAWA	8.05	1.18	1.58	0.013 ± 0.0042	0.011 ± 0.0036	0.019 ± 0.0052	0.012 ± 0.0033
Kasamatsu-machi, GIFU	7.26	1.14	1.43	0.029 ± 0.0088	0.025 ± 0.0077	0.0099 ± 0.0047	0.0069 ± 0.0033
Hino-machi, SHIGA	7.36	1.12	1.55	0.018 ± 0.0037	0.016 ± 0.0033	0.0035 ± 0.0042	0.0022 ± 0.0027
Oouchiyama-mura, MIE	7.35	1.12	1.61	0.020 ± 0.0039	0.018 ± 0.0035	0.012 ± 0.0044	0.0074 ± 0.0027
Mihara-machi, HYOUGO	7.48	1.12	1.51	0.015 ± 0.0036	0.013 ± 0.0032	0.0043 ± 0.0049	0.0028 ± 0.0033
Oouda-machi, NARA	7.42	1.14	1.50	0.014 ± 0.0074	0.012 ± 0.0065	0.0084 ± 0.0038	0.0056 ± 0.0025
Kamiita-machi, TOKUSHIMA	7.13	1.05	1.45	0.036 ± 0.0054	0.034 ± 0.0051	0.0026 ± 0.0043	0.0018 ± 0.0030
Takase-machi, KAGAWA	7.42	1.15	1.55	0.013 ± 0.0062	0.011 ± 0.0054	0.0071 ± 0.0045	0.0046 ± 0.0029
Kawauchi-machi, EHIME	7.27	1.10	1.51	0.019 ± 0.0041	0.018 ± 0.0037	0.0024 ± 0.0045	0.0016 ± 0.0030
Koushi-machi, KUMAMOTO	7.32	1.18	1.50	0.026 ± 0.0071	0.022 ± 0.0060	0.013 ± 0.0051	0.0085 ± 0.0034
Kujuu-machi, OOITA	7.61	1.19	1.51	0.0072 ± 0.0057	0.061 ± 0.0048	0.067 ± 0.0085	0.044 ± 0.0056
Takahara-machi, MIYAZAKI	7.41	1.06	1.61	0.014 ± 0.0044	0.013 ± 0.0041	0.022 ± 0.0068	0.022 ± 0.0042
March, 1998							
Takane-machi, YAMANASHI	7.05	1.08	1.46	0.022 ± 0.0072	0.020 ± 0.0067	0.0000 ± 0.0057	0.0000 ± 0.0039

(3)-2 Strontium-90 and Cesium-137 in Milk(producting districts for WHO program)
(from Oct. 1997 to Mar. 1998)
-continued from No, 123 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, 1997							
Hokudainoujou, HOKKAIDOU	7.39	1.22	1.43	0.048 ± 0.0096	0.039 ± 0.0079	0.070 ± 0.010	0.049 ± 0.0071
Hachijou-machi, TOKYO	7.33	1.03	1.54	0.055 ± 0.0066	0.053 ± 0.0064	0.022 ± 0.0058	0.015 ± 0.0037
Iwamuro-mura, NIIGATA	7.76	1.20	1.56	0.025 ± 0.0074	0.021 ± 0.0061	0.022 ± 0.0053	0.014 ± 0.0034
Katsuyama, FUKUI	7.55	1.11	1.47	0.060 ± 0.011	0.054 ± 0.0097	0.018 ± 0.0073	0.0063 ± 0.0028
Shijounawate, OSAKA	7.60	1.13	1.44	0.040 ± 0.0051	0.035 ± 0.0045	0.0067 ± 0.0047	0.0047 ± 0.0033
Matsue, SHIMANE	7.51	1.17	1.61	0.033 ± 0.0046	0.028 ± 0.0040	0.011 ± 0.0045	0.0066 ± 0.00228
Takamiya-machi, HIROSHIMA	7.46	1.14	1.47	0.035 ± 0.0050	0.031 ± 0.0044	0.0062 ± 0.0044	0.0042 ± 0.0030
Kochi, KOCHI	7.17	1.12	1.53	0.025 ± 0.012	0.022 ± 0.011	0.0017 ± 0.0041	0.0011 ± 0.0027
Yasu-machi, FUKUOKA	7.05	1.10	1.42	0.038 ± 0.0096	0.034 ± 0.0087	0.0044 ± 0.0063	0.0031 ± 0.0044
Kajiki-machi, KAGOSHIMA	7.53	1.17	1.62	0.022 ± 0.0069	0.019 ± 0.0059	0.032 ± 0.0065	0.020 ± 0.0040
January, 1998							
Shijounawate, OSAKA	7.33	1.14	1.43	0.032 ± 0.0081	0.028 ± 0.0071	0.011 ± 0.0042	0.0077 ± 0.0029
Takamiya-machi, HIROSHIMA	7.44	1.01	1.48	0.028 ± 0.0044	0.028 ± 0.0044	0.0000 ± 0.0047	0.0000 ± 0.0032
Febraly, 1998							
Hokudainoujou, HOKKAIDOU	7.67	1.20	1.61	0.039 ± 0.0054	0.033 ± 0.0045	0.047 ± 0.0074	0.029 ± 0.0046
Hachijou-machi, TOKYO	6.83	0.963	1.38	0.048 ± 0.0063	0.050 ± 0.0066	0.0047 ± 0.0044	0.0034 ± 0.0032
Iwamuro-mura, NIIGATA	7.42	1.14	1.49	0.032 ± 0.0050	0.028 ± 0.0044	0.011 ± 0.0045	0.0077 ± 0.0030
Katsuyama, FUKUI	7.55	1.14	1.43	0.029 ± 0.0088	0.025 ± 0.0077	0.0099 ± 0.0047	0.0063 ± 0.0024
Matsue, SHIMANE	8.67	1.23	1.61	0.018 ± 0.0043	0.015 ± 0.0035	0.0020 ± 0.0040	0.0012 ± 0.0025
Kochi, KOCHI	7.47	1.17	1.64	0.052 ± 0.0056	0.044 ± 0.0047	0.014 ± 0.0046	0.0085 ± 0.0028
Yasu-machi, FUKUOKA	8.19	1.11	1.94	0.047 ± 0.012	0.042 ± 0.010	0.0000 ± 0.0046	0.0000 ± 0.0024
Kajiki-machi, KAGOSHIMA	7.27	1.10	1.54	0.025 ± 0.0048	0.023 ± 0.0044	0.011 ± 0.0047	0.0071 ± 0.0031

(3)-3 Strontium-90 and Cesium-137 in Milk(consuming districts)
(from Oct. 1997 to Mar. 1998)
-continued from No. 123 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, 1997							
Kyoto, KYOTO	7.61	1.11	1.56	0.028 ± 0.0078	0.025 ± 0.0070	0.024 ± 0.0060	0.015 ± 0.0039
December, 1997							
Akita, AKITA	6.74	1.02	1.45	0.026 ± 0.0080	0.025 ± 0.0079	0.027 ± 0.0062	0.019 ± 0.0043
January, 1998							
Yamagata, YAMAGATA	6.92	1.06	1.53	0.012 ± 0.0069	0.012 ± 0.0065	0.013 ± 0.0044	0.0088 ± 0.0029
Osaka, OSAKA	7.12	1.08	1.54	0.030 ± 0.0078	0.027 ± 0.0072	0.016 ± 0.0045	0.011 ± 0.0030
Hiroshima, HIROSHIMA	7.19	1.08	1.47	0.022 ± 0.0041	0.021 ± 0.0038	0.0093 ± 0.0050	0.0064 ± 0.0034
Febraly, 1998							
Sapporo, HOKKAIDOU	7.01	1.09	1.43	0.044 ± 0.0069	0.040 ± 0.0064	0.031 ± 0.0061	0.021 ± 0.0043
Fukushima, FUKUSHIMA	7.60	1.14	1.65	0.021 ± 0.0043	0.018 ± 0.0037	0.014 ± 0.0045	0.0086 ± 0.0027
Urawa, SAITAMA	7.20	1.10	1.58	0.025 ± 0.0066	0.023 ± 0.0061	0.011 ± 0.0048	0.0071 ± 0.0030
Shinjuku, TOKYO	7.75	1.09	1.52	0.021 ± 0.0042	0.020 ± 0.0039	0.0000 ± 0.0036	0.0000 ± 0.0024
Yokohama, KANAGAWA	7.38	1.11	1.60	0.018 ± 0.0040	0.017 ± 0.0036	0.0064 ± 0.0042	0.0040 ± 0.0026
Niigata, NIIGATA	7.81	1.16	1.59	0.027 ± 0.0047	0.023 ± 0.0041	0.010 ± 0.0043	0.0063 ± 0.0027
Fukui, FUKUI	7.25	1.10	1.53	0.015 ± 0.0035	0.014 ± 0.0032	0.0094 ± 0.0045	0.0061 ± 0.0029
Shizuoka, SHIZUOKA	7.06	1.09	1.48	0.017 ± 0.0045	0.015 ± 0.0042	0.0033 ± 0.0039	0.0022 ± 0.0026
Nagoya, AICHI	7.35	1.10	1.52	0.027 ± 0.0045	0.025 ± 0.0041	0.015 ± 0.0045	0.0099 ± 0.0030
Yonago, TOTTORI	7.17	1.08	1.51	0.018 ± 0.0045	0.016 ± 0.0042	0.014 ± 0.0048	0.0094 ± 0.0032
Matsue, SHIMANE	7.26	1.10	1.49	0.022 ± 0.0049	0.020 ± 0.0045	0.018 ± 0.0054	0.012 ± 0.0036
Okayama, OKAYAMA	7.03	0.978	1.41	0.030 ± 0.0049	0.031 ± 0.0050	0.0020 ± 0.0040	0.0014 ± 0.0028
Yamaguchi, YAMAGUCHI	6.99	1.09	1.52	0.025 ± 0.0042	0.023 ± 0.0039	0.052 ± 0.0069	0.035 ± 0.0046
Kawauchi-machi, EHIME	7.08	1.09	1.53	0.020 ± 0.0041	0.018 ± 0.0038	0.0016 ± 0.0043	0.0011 ± 0.0028
Kochi, KOCHI	6.95	1.08	1.50	0.017 ± 0.0073	0.015 ± 0.0068	0.011 ± 0.0047	0.0075 ± 0.0031
Chikushino, FUKUOKA	7.11	1.08	1.49	0.024 ± 0.0040	0.014 ± 0.0037	0.011 ± 0.0051	0.0072 ± 0.0034
Nagasaki, NAGASAKI	6.96	1.06	1.52	0.035 ± 0.0095	0.033 ± 0.0090	0.0062 ± 0.0040	0.0041 ± 0.0026
Kagoshima, KAGOSHIMA	5.93	0.896	1.24	0.023 ± 0.0049	0.026 ± 0.0055	0.012 ± 0.0048	0.0096 ± 0.0039

Location	Component			^{90}Sr		^{137}Cs	
	Ash(g/ ℓ)	Ca(g/ ℓ)	K(g/ ℓ)	(Bq/ ℓ)	(Bq/gCa)	(Bq/ ℓ)	(Bq/gK)
Yonagusuku-machi, Okinawa March, 1998	7.29	1.12	1.58	0.023 ± 0.0065	0.021 ± 0.0058	0.0027 ± 0.0047	0.0017 ± 0.0030
Nagano, NAGANO	6.95	1.08	1.40	0.040 ± 0.0059	0.037 ± 0.0054	0.0079 ± 0.0041	0.0057 ± 0.0029

(3)-4 Strontium-90 and Cesium-137 in Milk(powdered milk)
(from Oct. 1997 to Mar. 1998)
-continued from No, 123 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)	
January, 1998											
Sample C,	8.93	12.6	16.3	0.61	± 0.039	0.048	± 0.0031	1.2	± 0.04	0.075	± 0.0025
Febraly, 1998											
Sample A,	7.94	12.2	16.5	0.34	± 0.031	0.028	± 0.0025	0.35	± 0.022	0.021	± 0.0013
Sample B,	2.55	3.37	5.64	0.064	± 0.010	0.019	± 0.0031	0.062	± 0.0086	0.011	± 0.0015
Sample D,	2.65	3.82	5.88	0.041	± 0.0086	0.011	± 0.0023	0.017	± 0.0056	0.0030	± 0.0096
Sample E,	2.68	4.10	5.12	0.10	± 0.013	0.025	± 0.0032	0.15	± 0.012	0.029	± 0.0023
Sample F,	2.52	3.55	5.24	0.048	± 0.0094	0.014	± 0.0027	0.097	± 0.0099	0.018	± 0.0019

(4)-1 Strontium-90 and cesium-137 in Vegetables(producing districts)
(from Oct. 1997 to Mar. 1998)

-continued from No. 123 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, 1997											
Mutsu, AOMORI	0.533	0.440	1.92	0.43	± 0.025	0.97	± 0.057	0.014	± 0.0063	0.0073	± 0.0033
November, 1997											
Sannohe-machi, AOMORI	0.638	0.303	2.50	0.042	± 0.0092	0.14	± 0.030	0.013	± 0.0065	0.0051	± 0.0026
Febraly, 1998											
Kumatori-machi, OSAKA	0.641	0.256	2.61	0.019	± 0.0050	0.073	± 0.019	0.0000	± 0.0034	0.0000	± 0.0013
(Chinese cabbege)											
October, 1997											
Tamayama-mura, IWATE	0.555	0.383	2.29	0.085	± 0.0079	0.22	± 0.021	0.020	± 0.0054	0.0086	± 0.0024
December, 1997											
Utsunomiya, TOCHIGI	0.474	0.408	1.64	0.18	± 0.016	0.45	± 0.039	0.060	± 0.0079	0.037	± 0.0048
Febraly, 1998											
Shinguu, WAKAYAMA	0.711	0.371	2.87	0.12	± 0.014	0.34	± 0.037	0.0074	± 0.0041	0.0026	± 0.0014
(Japanese radish)											
October, 1997											
Tamayama-mura, IWATE	0.545	0.208	2.33	0.043	± 0.0063	0.20	± 0.030	0.0058	± 0.0042	0.0025	± 0.0018
Saku, NAGANO	0.538	0.297	1.97	0.060	± 0.010	0.20	± 0.035	0.0000	± 0.0030	0.0000	± 0.0015
Takamatsu, KAGAWA	0.433	0.257	1.60	0.11	± 0.012	0.41	± 0.048	0.011	± 0.0047	0.0069	± 0.0029
November, 1997											
Sannohe-machi, AOMORI	0.462	0.211	1.80	0.082	± 0.013	0.39	± 0.060	0.013	± 0.0065	0.0074	± 0.0036
Fukushima, FUKUSHIMA	0.532	0.277	1.96	0.054	± 0.0081	0.19	± 0.029	0.0013	± 0.0036	0.0007	± 0.0018
Mito, IBARAKI	0.514	0.346	2.00	0.062	± 0.011	0.18	± 0.032	0.0033	± 0.0043	0.0017	± 0.0021
Maebashi, GUNMA	0.592	0.225	2.69	0.048	± 0.0062	0.21	± 0.027	0.0074	± 0.0036	0.0027	± 0.0013
Chiba, CHIBA	0.474	0.401	1.67	0.15	± 0.015	0.38	± 0.037	0.0021	± 0.0049	0.0013	± 0.0029
Kosugi-machi, TOYAMA	0.405	0.209	1.53	0.039	± 0.0082	0.19	± 0.039	0.0003	± 0.0033	0.0002	± 0.0022

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Fukui, FUKUI	0.555	0.164	2.53	0.10 ± 0.013	0.62 ± 0.077	0.0048 ± 0.0039	0.0019 ± 0.0015
Gifu, GIFU	0.498	0.204	1.97	0.066 ± 0.011	0.32 ± 0.052	0.011 ± 0.0040	0.0058 ± 0.0020
Hamamatsu, SHIZUOKA	0.511	0.134	4.11	0.026 ± 0.0060	0.19 ± 0.045	0.0072 ± 0.0042	0.0017 ± 0.0010
Gotenba, SHIZUOKA	0.640	0.183	2.58	0.033 ± 0.0050	0.18 ± 0.027	0.064 ± 0.0076	0.025 ± 0.0029
Adogawa-machi, SHIGA	0.453	0.152	1.90	0.18 ± 0.019	1.2 ± 0.13	0.0040 ± 0.0042	0.0021 ± 0.0022
Meiwa-machi, MIE	0.492	0.225	2.12	0.053 ± 0.012	0.24 ± 0.054	0.034 ± 0.0067	0.016 ± 0.0032
Kasai, HYOUGO	0.536	0.140	2.37	0.064 ± 0.012	0.46 ± 0.086	0.0000 ± 0.0038	0.0000 ± 0.0016
Itano-machi, TOKUSHIMA	0.564	0.139	2.22	0.037 ± 0.010	0.27 ± 0.072	0.0062 ± 0.0056	0.0028 ± 0.0025
Shime-machi, FUKUOKA	0.639	0.197	2.77	0.041 ± 0.0061	0.21 ± 0.031	0.017 ± 0.0055	0.0061 ± 0.0020
Saga, SAGA	0.553	0.142	2.58	0.0089 ± 0.0074	0.063 ± 0.052	0.0000 ± 0.0033	0.0000 ± 0.0013
Takanabe-machi, MIYAZAKI	0.564	0.167	2.31	0.078 ± 0.012	0.47 ± 0.069	0.015 ± 0.0052	0.0065 ± 0.0022
December, 1997							
Utsunomiya, TOCHIGI	0.367	0.240	1.34	0.079 ± 0.011	0.33 ± 0.045	0.011 ± 0.0047	0.0080 ± 0.0035
Takane-machi, YAMANASHI	0.449	0.220	1.67	0.091 ± 0.0082	0.42 ± 0.037	0.0000 ± 0.0030	0.0000 ± 0.0018
Kashihara, NARA	0.475	0.164	2.01	0.019 ± 0.0075	0.12 ± 0.046	0.0000 ± 0.0035	0.0000 ± 0.0017
Kokufu-machi, TOTTORI	0.524	0.221	2.23	0.18 ± 0.017	0.82 ± 0.077	0.0000 ± 0.0039	0.0000 ± 0.0017
Hiroshima, HIROSHIMA	0.478	0.160	1.98	0.016 ± 0.0041	0.10 ± 0.026	0.0033 ± 0.0037	0.0017 ± 0.0018
Kubokawa-machi, KOCHI	0.622	0.174	2.44	0.32 ± 0.023	1.9 ± 0.13	0.0068 ± 0.0044	0.0028 ± 0.0018
Usa, OOITA	0.705	0.243	3.11	0.071 ± 0.011	0.29 ± 0.047	0.0000 ± 0.0037	0.0000 ± 0.0012
Kaimon-machi, KAGOSHIMA	0.625	0.249	2.44	0.069 ± 0.0073	0.28 ± 0.030	0.017 ± 0.0056	0.0071 ± 0.0023
January, 1998							
Yuya-machi, YAMAGUCHI	0.523	0.199	2.02	0.084 ± 0.011	0.42 ± 0.055	0.0000 ± 0.0036	0.0000 ± 0.0018
Febraly, 1998							
Shinguu, WAKAYAMA	0.506	0.196	1.77	0.0058 ± 0.0037	0.030 ± 0.019	0.0004 ± 0.0036	0.0002 ± 0.0020
(Spinach)							
October, 1997							

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Toyama, TOYAMA	1.74	0.994	6.70	0.048 ± 0.0095	0.048 ± 0.0095	0.012 ± 0.0048	0.0018 ± 0.00071
Saku, NAGANO	1.55	0.384	6.54	0.043 ± 0.010	0.11 ± 0.027	0.0055 ± 0.0041	0.00083 ± 0.00063
Takamatsu, KAGAWA	1.70	0.831	6.48	0.046 ± 0.0091	0.056 ± 0.011	0.0081 ± 0.0052	0.0012 ± 0.00080
Saga, SAGA	1.94	0.936	7.84	0.015 ± 0.0065	0.016 ± 0.0069	0.0057 ± 0.0038	0.00073 ± 0.00049
Matsumoto-machi, KAGOSHIMA	1.62	1.02	3.10	0.058 ± 0.0079	0.057 ± 0.0077	0.36 ± 0.018	0.012 ± 0.006
November, 1997							
Fukushima, FUKUSHIMA	1.65	1.07	5.31	0.15 ± 0.010	0.14 ± 0.010	0.011 ± 0.0051	0.0020 ± 0.00095
Mito, IBARAKI	1.69	1.20	6.51	0.27 ± 0.020	0.22 ± 0.017	0.043 ± 0.0068	0.0066 ± 0.0011
Maebashi, GUNMA	1.51	0.444	6.24	0.058 ± 0.0072	0.13 ± 0.016	0.056 ± 0.0081	0.0089 ± 0.0013
Chiba, CHIBA	1.71	0.390	7.25	0.029 ± 0.0082	0.074 ± 0.021	0.0070 ± 0.0059	0.00096 ± 0.00081
Fukui, FUKUI	1.79	0.381	8.47	0.0091 ± 0.0090	0.024 ± 0.024	0.0034 ± 0.0042	0.00041 ± 0.00049
Gifu, GIFU	1.81	0.717	7.26	0.050 ± 0.010	0.070 ± 0.014	0.012 ± 0.0051	0.0016 ± 0.00071
Gotenba, SHIZUOKA	1.78	0.924	7.23	0.060 ± 0.0068	0.065 ± 0.0073	0.057 ± 0.0078	0.0079 ± 0.0011
Kusu-machi, MIE	2.63	1.61	9.65	0.049 ± 0.011	0.030 ± 0.0068	0.019 ± 0.0058	0.0019 ± 0.00060
Rittou-machi, SHIGA	1.47	0.783	5.28	0.011 ± 0.0068	0.014 ± 0.0087	0.0027 ± 0.0042	0.00052 ± 0.00079
Kasai, HYOUGO	1.83	0.926	7.54	0.14 ± 0.015	0.15 ± 0.016	0.0000 ± 0.0040	0.00000 ± 0.00053
Kurayoshi, TOTTORI	1.49	0.508	5.96	0.041 ± 0.010	0.081 ± 0.020	0.038 ± 0.0071	0.0064 ± 0.0012
Matsuyama, EHIME	1.57	0.754	5.98	0.046 ± 0.0056	0.061 ± 0.0074	0.0052 ± 0.0048	0.00088 ± 0.00080
Shime-machi, FUKUOKA	2.14	1.32	8.90	0.031 ± 0.0054	0.023 ± 0.0041	0.011 ± 0.0051	0.0012 ± 0.00057
Takanabe-machi, MIYAZAKI	1.42	0.322	6.11	0.068 ± 0.012	0.20 ± 0.035	0.026 ± 0.0063	0.0042 ± 0.0010
December, 1997							
Takane-machi, YAMANASHI	1.58	0.315	6.52	0.025 ± 0.0054	0.078 ± 0.017	0.0067 ± 0.0040	0.0010 ± 0.00062
Kashihara, NARA	1.27	0.246	5.14	0.019 ± 0.0071	0.078 ± 0.029	0.0012 ± 0.0041	0.00024 ± 0.00080
Hiroshima, HIROSHIMA	1.36	0.339	5.78	0.023 ± 0.0046	0.068 ± 0.014	0.0000 ± 0.0036	0.00000 ± 0.00063
Ishii-machi, TOKUSHIMA	1.52	0.740	5.52	0.0057 ± 0.0068	0.0077 ± 0.0092	0.0080 ± 0.0060	0.0015 ± 0.0011
Kubokawa-machi, KOCHI	1.82	0.466	7.52	0.087 ± 0.013	0.19 ± 0.029	0.026 ± 0.0057	0.0035 ± 0.00076

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Usa, OOITA January, 1998	1.42	0.278	6.29	0.062 ± 0.011	0.22 ± 0.039	0.0038 ± 0.0045	0.00060 ± 0.00072
Yuya-machi, YAMAGUCHI	1.69	0.719	5.92	0.11 ± 0.013	0.16 ± 0.019	0.025 ± 0.0064	0.0042 ± 0.0011

(4)-2 Strontium-90 and cesium-137 in Vegetables(consuming districts)
(from Oct. 1997 to Mar. 1998)

-continued from No. 123 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)							
October, 1997							
Akita, AKITA	0.563	0.281	2.31	0.039 ± 0.0098	0.14 ± 0.035	0.0066 ± 0.0043	0.0028 ± 0.0019
(Japanese radish)							
October, 1997							
Akita, AKITA	0.445	0.155	2.02	0.015 ± 0.0081	0.096 ± 0.052	0.0000 ± 0.0036	0.0000 ± 0.0018
Yamagata, YAMAGATA	0.398	0.179	1.54	0.20 ± 0.017	1.1 ± 0.10	0.013 ± 0.0051	0.0083 ± 0.0033
Kyoto, KYOTO	0.574	0.213	2.11	0.022 ± 0.0049	0.11 ± 0.023	0.037 ± 0.0065	0.017 ± 0.0031
Yonagusuku-machi, Okinawa	0.635	0.295	2.59	0.014 ± 0.0074	0.047 ± 0.025	0.0000 ± 0.0059	0.0000 ± 0.0023
November, 1997							
Shinjuku, TOKYO	0.435	0.329	1.58	0.077 ± 0.012	0.23 ± 0.035	0.010 ± 0.0057	0.0065 ± 0.0036
Niigata, NIIGATA	0.445	0.154	1.77	0.018 ± 0.0054	0.12 ± 0.035	0.028 ± 0.0054	0.016 ± 0.0031
Kanazawa, ISHIKAWA	0.516	0.205	2.08	0.0088 ± 0.0036	0.043 ± 0.018	0.0064 ± 0.0043	0.0031 ± 0.0021
Osaka, OSAKA	0.437	0.424	1.33	0.10 ± 0.012	0.24 ± 0.029	0.018 ± 0.0044	0.014 ± 0.0033
Okayama, OKAYAMA	0.569	0.183	2.43	0.15 ± 0.016	0.84 ± 0.088	0.0098 ± 0.0040	0.0040 ± 0.0017
January, 1998							
Yokohama, KANAGAWA	0.444	0.194	1.43	0.011 ± 0.0040	0.058 ± 0.020	0.0014 ± 0.0035	0.0010 ± 0.0024
Nagasaki, NAGASAKI	0.466	0.180	1.68	0.14 ± 0.010	0.79 ± 0.057	0.024 ± 0.0061	0.015 ± 0.0036
(Spinach)							
October, 1997							
Yamagata, YAMAGATA	1.59	0.706	6.21	0.064 ± 0.010	0.090 ± 0.015	0.018 ± 0.0059	0.0030 ± 0.00095
Yonagusuku-machi, Okinawa	1.91	0.493	8.50	0.011 ± 0.0065	0.023 ± 0.013	0.0000 ± 0.0040	0.00000 ± 0.00047
November, 1997							
Shinjuku, TOKYO	1.43	0.488	6.25	0.010 ± 0.0066	0.021 ± 0.014	0.027 ± 0.0070	0.0043 ± 0.0011
Kanazawa, ISHIKAWA	2.26	0.683	8.86	0.079 ± 0.0074	0.12 ± 0.011	0.027 ± 0.0064	0.0030 ± 0.00072
Kyoto, KYOTO	1.74	1.15	6.32	0.087 ± 0.0076	0.075 ± 0.0066	0.019 ± 0.0058	0.0030 ± 0.00091

Location	Component			^{90}Sr				^{137}Cs			
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)		(Bq/gCa)		(Bq/kgwet)		(Bq/gK)	
Osaka, OSAKA	1.88	0.431	6.64	0.025	± 0.0084	0.058	± 0.019	0.015	± 0.0051	0.0023	± 0.00077
Okayama, OKAYAMA	1.79	0.791	6.84	0.018	± 0.0072	0.022	± 0.0090	0.020	± 0.0059	0.0029	± 0.00086
Matsuyama, EHIME	1.35	0.521	5.15	0.027	± 0.0048	0.053	± 0.0092	0.018	± 0.0052	0.0034	± 0.0010
January, 1998											
Yokohama, KANAGAWA	1.55	0.383	6.67	0.11	± 0.009	0.28	± 0.023	0.0079	± 0.0047	0.0012	± 0.00070
Nagasaki, NAGASAKI	1.69	0.377	6.93	0.056	± 0.0067	0.15	± 0.018	0.030	± 0.0065	0.0043	± 0.00094

(5) Strontium-90 and cesium-137 in Sea Fish
(from Oct. 1997 to Mar. 1998)

-continued from No, 123 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, 1997							
Nagasaki, NAGASAKI	1.28	0.815	3.10	0.0083 ± 0.0064	0.010 ± 0.0079	0.12 ± 0.010	0.038 ± 0.0033
(Limanda herzensteini)							
November, 1997							
Mutsu, AOMORI	1.25	0.554	3.64	0.0008 ± 0.0062	0.001 ± 0.011	0.089 ± 0.0092	0.025 ± 0.0025
Niigata, NIIGATA	1.38	0.718	3.68	0.0000 ± 0.0059	0.0000 ± 0.0083	0.054 ± 0.0077	0.015 ± 0.0021
Echizen-machi, FUKUI	1.45	1.89	2.70	0.0060 ± 0.0060	0.0032 ± 0.0032	0.075 ± 0.0087	0.028 ± 0.0032
Aji-machi, KAGAWA	1.56	0.791	4.06	0.0050 ± 0.0057	0.0063 ± 0.0072	0.089 ± 0.0091	0.022 ± 0.0022
Febraly, 1998							
Ootake, HIROSHIMA	1.98	2.79	3.62	0.0000 ± 0.0059	0.0000 ± 0.0021	0.053 ± 0.0077	0.015 ± 0.0021
(Mugil cephalus)							
November, 1997							
Ushimado-machi, OKAYAMA	1.50	0.669	4.09	0.021 ± 0.0077	0.031 ± 0.011	0.055 ± 0.0084	0.013 ± 0.0021
(Pterocaesio diagramma)							
December, 1997							
Yonagusuku-machi, Okinawa	3.47	7.14	3.83	0.0027 ± 0.0061	0.00038 ± 0.00085	0.13 ± 0.012	0.033 ± 0.0031
(Sardinops melanostictus)							
March, 1998							
Nagano, NAGANO	3.11	6.71	3.01	0.011 ± 0.0082	0.0017 ± 0.0012	0.072 ± 0.0095	0.024 ± 0.0031
(Scomber australasicus)							
Febraly, 1998							
Chikura-machi, CHIBA	1.31	0.174	3.34	0.0007 ± 0.0058	0.004 ± 0.033	0.096 ± 0.0095	0.029 ± 0.0029
(Scomber sp)							
November, 1997							
Kyoto, KYOTO	1.23	0.196	3.43	0.0000 ± 0.0052	0.000 ± 0.027	0.12 ± 0.010	0.034 ± 0.0030

Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
Osaka, OSAKA January, 1998	1.05	0.048	2.96	0.0021 ± 0.0058	0.04 ± 0.12	0.12 ± 0.010	0.040 ± 0.0035
Oki-abjacent seas, TOTTRI (Sebastes inermis) March, 1998	1.29	0.360	2.86	0.010 ± 0.0068	0.029 ± 0.019	0.25 ± 0.015	0.086 ± 0.0051
Yamaguchi, YAMAGUCHI (Seriola quinqueradiata) October, 1997	4.65	8.28	2.87	0.017 ± 0.0091	0.0021 ± 0.0011	0.13 ± 0.012	0.044 ± 0.0042
Monzen-machi, ISHIKAWA (Spratelloides gracilis) November, 1997	1.28	0.581	3.56	0.0086 ± 0.0058	0.015 ± 0.010	0.16 ± 0.012	0.046 ± 0.0034
Akune, KAGOSHIMA (Trachurus sp) November, 1997	2.84	5.43	3.39	0.0000 ± 0.0057	0.0000 ± 0.0010	0.13 ± 0.012	0.039 ± 0.0035
Miyake-Island, TOKYO	0.893	1.04	1.77	0.0038 ± 0.0066	0.0037 ± 0.0063	0.087 ± 0.0092	0.049 ± 0.0052
Odawara, KANAGAWA	1.48	0.408	4.13	0.0000 ± 0.0050	0.000 ± 0.012	0.10 ± 0.010	0.024 ± 0.0025
Shinguu, WAKAYAMA	3.34	7.23	3.58	0.0045 ± 0.0059	0.00063 ± 0.00082	0.15 ± 0.013	0.043 ± 0.0036

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
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 (26)
(from Oct. 1997 to Mar. 1998)

-continued from No, 123 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, 1997							
Niigata, NIIGATA	1.18	0.445	3.34	0.033 ± 0.0089	0.074 ± 0.020	0.13 ± 0.011	0.039 ± 0.0033
December, 1997							
Mikata-machi, FUKUI	1.28	1.36	2.87	0.086 ± 0.012	0.063 ± 0.0090	0.11 ± 0.012	0.038 ± 0.0040
Uji, KYOTO	4.25	12.2	2.78	0.58 ± 0.032	0.048 ± 0.0027	0.017 ± 0.0060	0.0061 ± 0.0022
(Cyprinus carpio)							
October, 1997							
Shobara, HIROSHIMA	1.30	1.07	3.08	0.11 ± 0.013	0.10 ± 0.013	0.043 ± 0.0071	0.014 ± 0.0023
(Hypomesus nipponensis)							
December, 1997							
Suwa, NAGANO	2.16	4.93	1.43	0.095 ± 0.012	0.019 ± 0.0025	0.071 ± 0.0087	0.050 ± 0.0061
(Salmo gairdneri)							
November, 1997							
Kumagaya, SAITAMA	1.27	0.119	3.95	0.0014 ± 0.0050	0.012 ± 0.042	0.22 ± 0.014	0.056 ± 0.0035

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
Iwana	Char	Salvelinus leucomaenis

(7) Strontium-90 and cesium-137 in Shellfish
(from Oct. 1997 to Mar. 1998)

-continued from No. 123 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, 1998							
Hatsukaichi, HIROSHIMA	1.92	1.08	2.15	0.0000 ± 0.0074	0.0000 ± 0.0069	0.021 ± 0.0072	0.0096 ± 0.0033
(Patinopecten yessoensis)							
November, 1997							
Mutsu, AOMORI	2.27	0.449	2.69	0.0017 ± 0.0051	0.004 ± 0.011	0.039 ± 0.0066	0.015 ± 0.0024
Febraly, 1998							
Yamada-machi, IWATE	1.57	0.237	2.45	0.0000 ± 0.0059	0.000 ± 0.025	0.027 ± 0.0062	0.011 ± 0.0026

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 (30)
(from Oct. 1997 to Mar. 1998)

-continued from No. 123 of this publication-

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

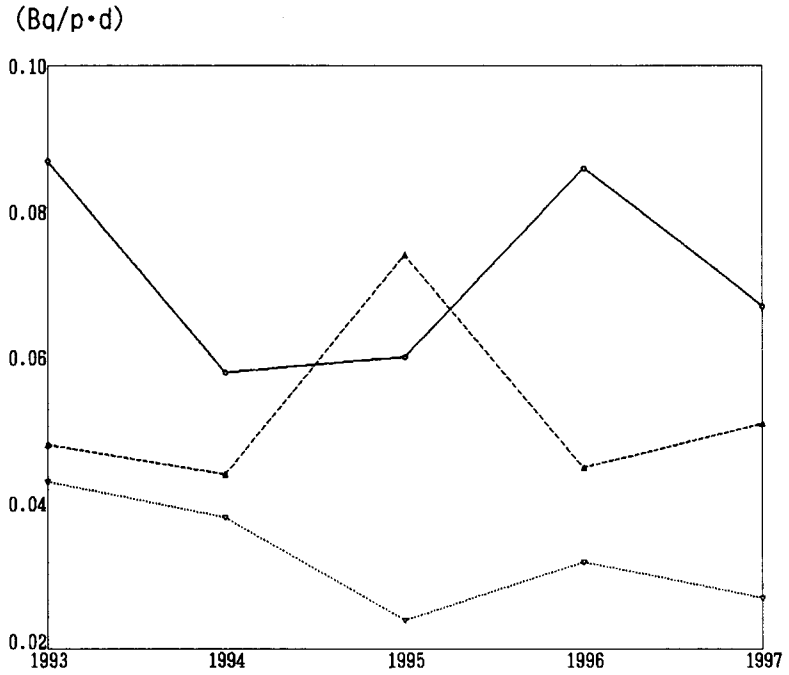
Location	Component			^{90}Sr		^{137}Cs	
	Ash(%)	Ca(g/kg)	K(g/kg)	(Bq/kgwet)	(Bq/gCa)	(Bq/kgwet)	(Bq/gK)
(Undaria pinnatifida)							
Febraly, 1998							
Minamichita-machi, AICHI	2.24	0.749	6.81	0.027 ± 0.0078	0.036 ± 0.010	0.013 ± 0.0067	0.0019 ± 0.00098
Hiroshima, HIROSHIMA	1.67	0.428	4.34	0.0080 ± 0.0057	0.019 ± 0.013	0.017 ± 0.0061	0.0039 ± 0.0014
Shimabara, NAGASAKI	2.48	0.565	7.22	0.011 ± 0.0068	0.019 ± 0.012	0.020 ± 0.0055	0.0028 ± 0.00077

Seaweeds

Japanese name	English name	Scientific name
Wakame	Wakame seaweed	Undaria pinnatifida

* * Total Diet * *

<Strontium-90>



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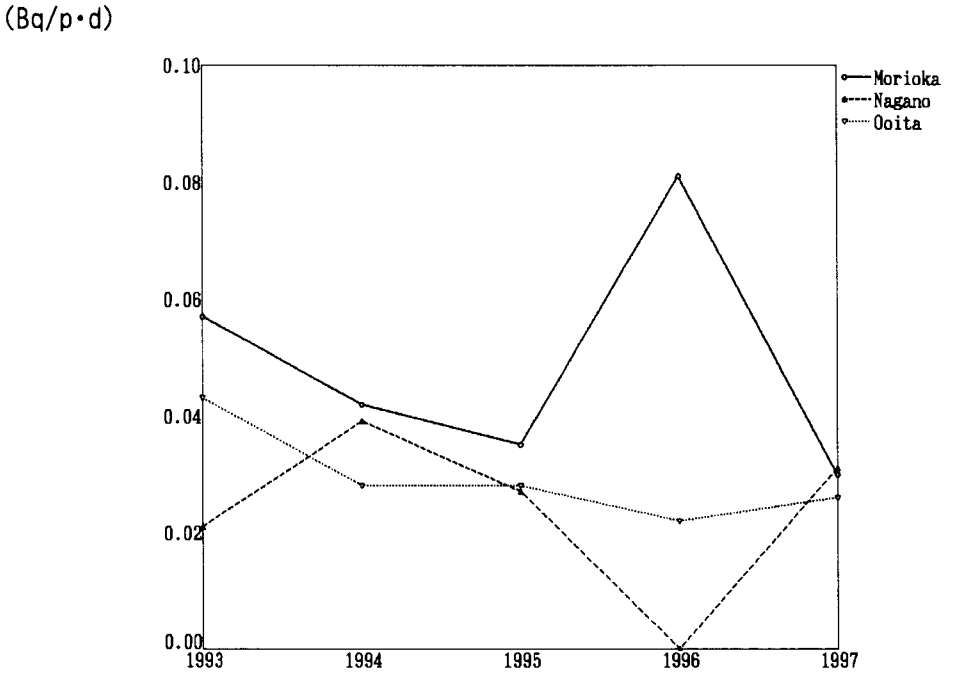

Fig. 1

＊ ＊ Rice (producing districts) ＊ ＊

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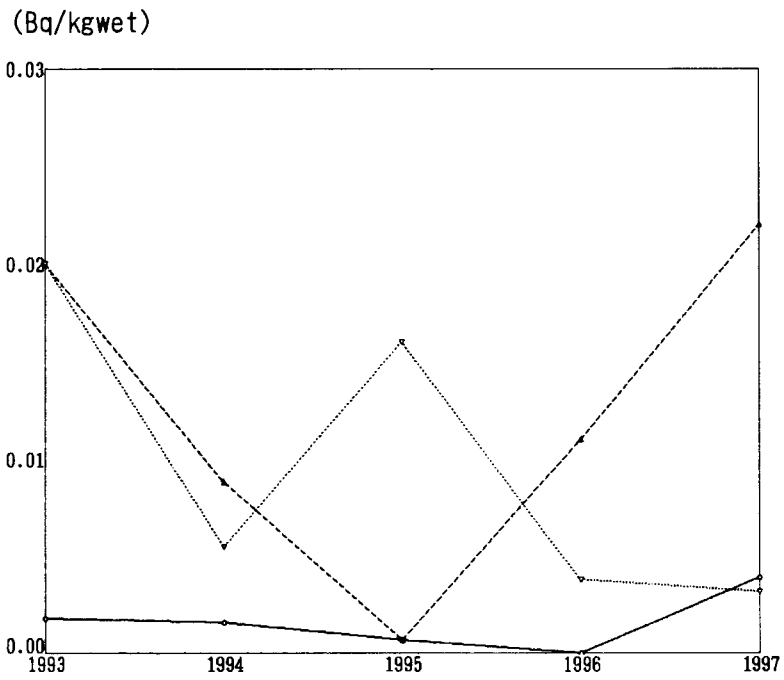

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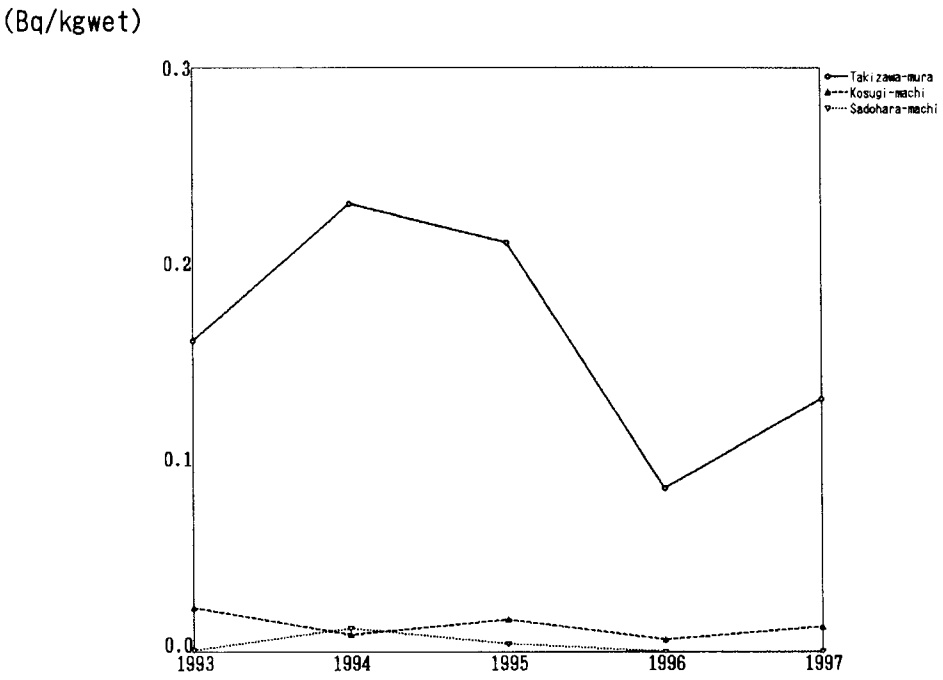

Fig. 2−1

* * Rice (consuming districts) * *

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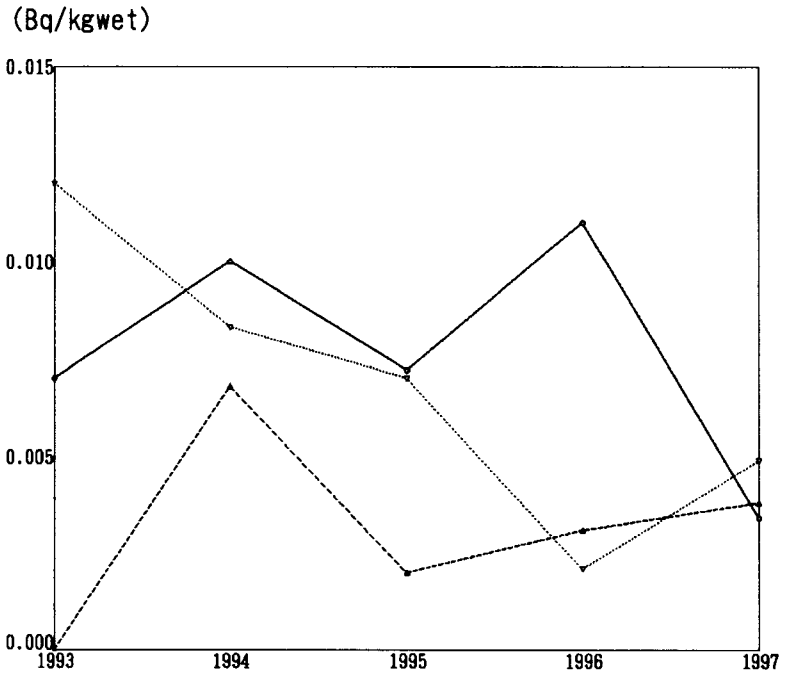

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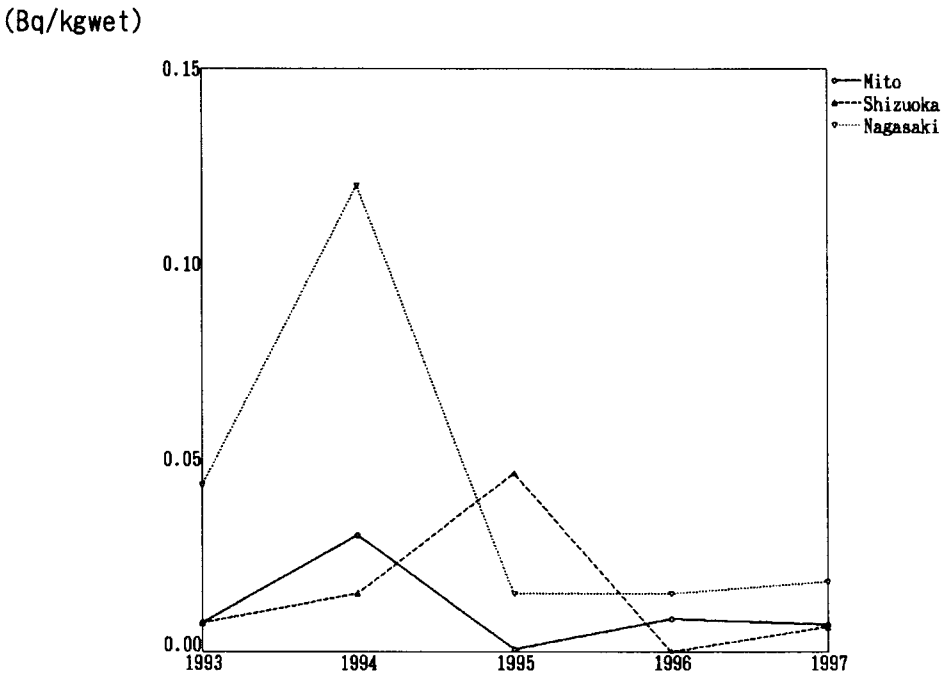

Fig. 2-2

＊＊ Milk (producing districts for domestic program)

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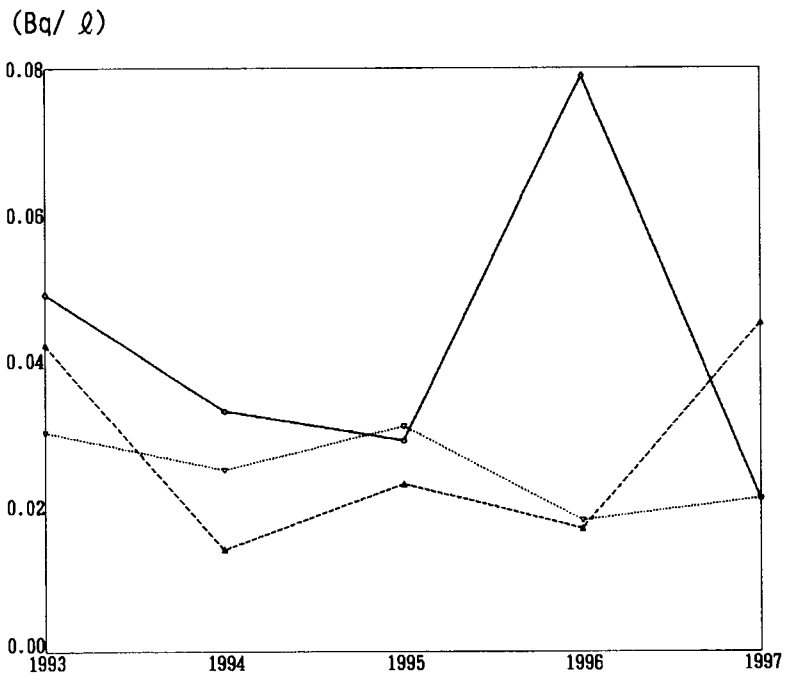

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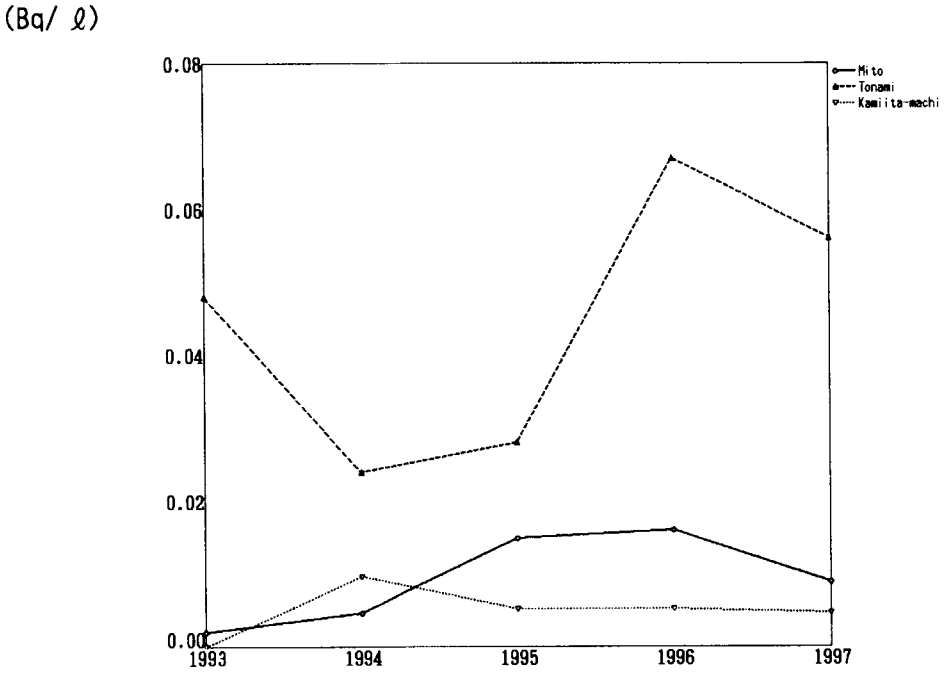

Fig. 3−1

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

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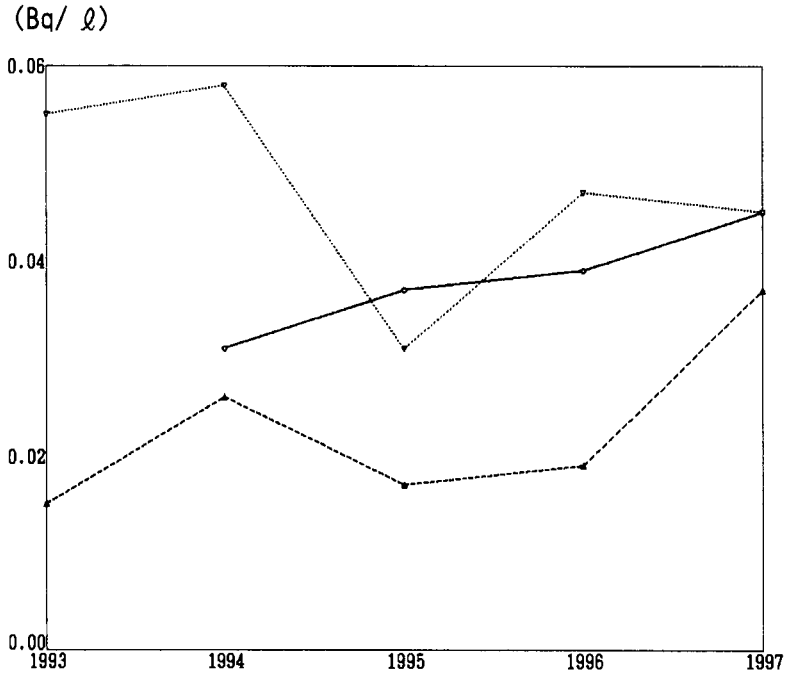

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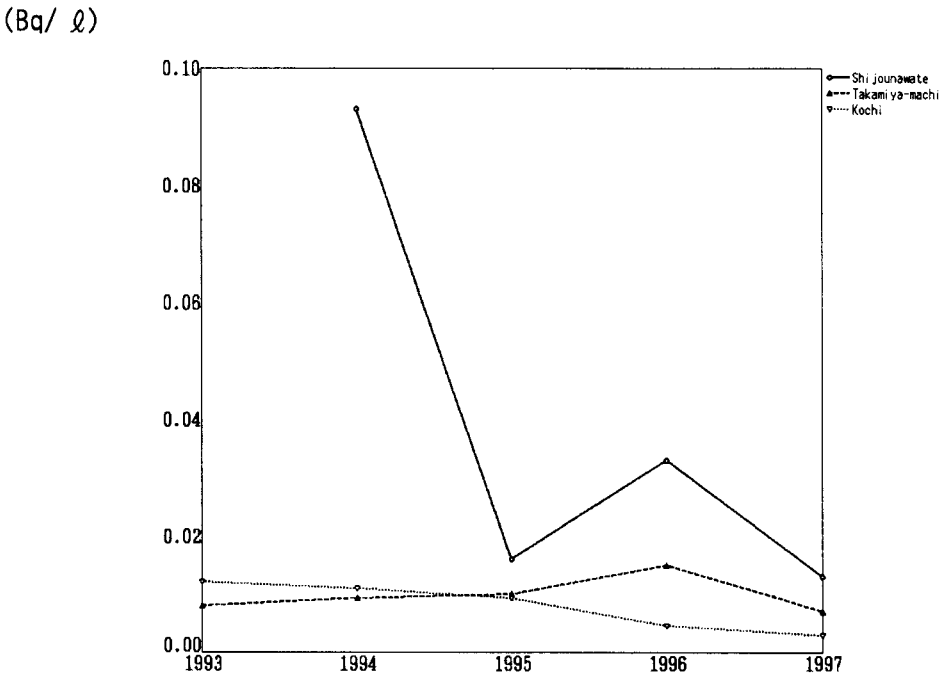

Fig. 3−2

＊ ＊ Milk (consuming districts) ＊ ＊

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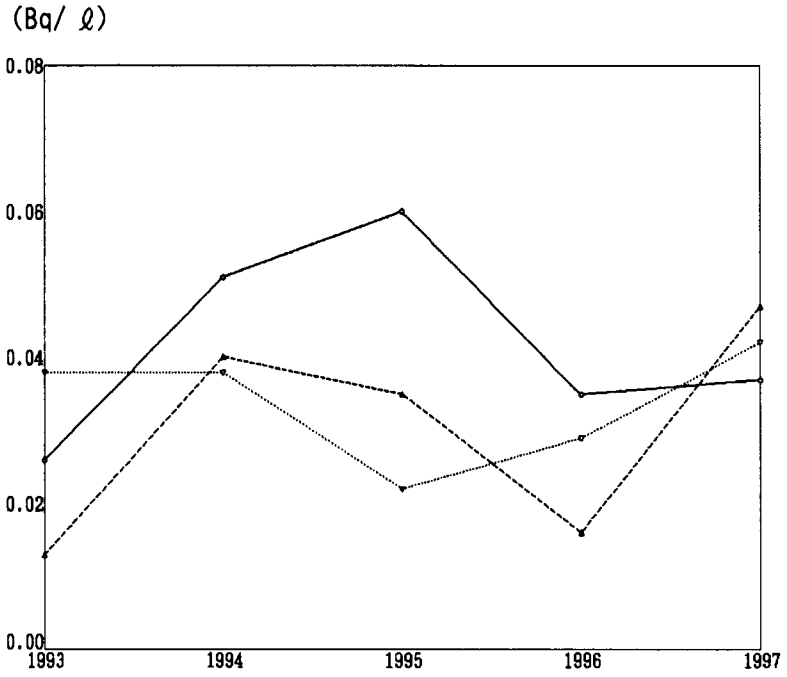

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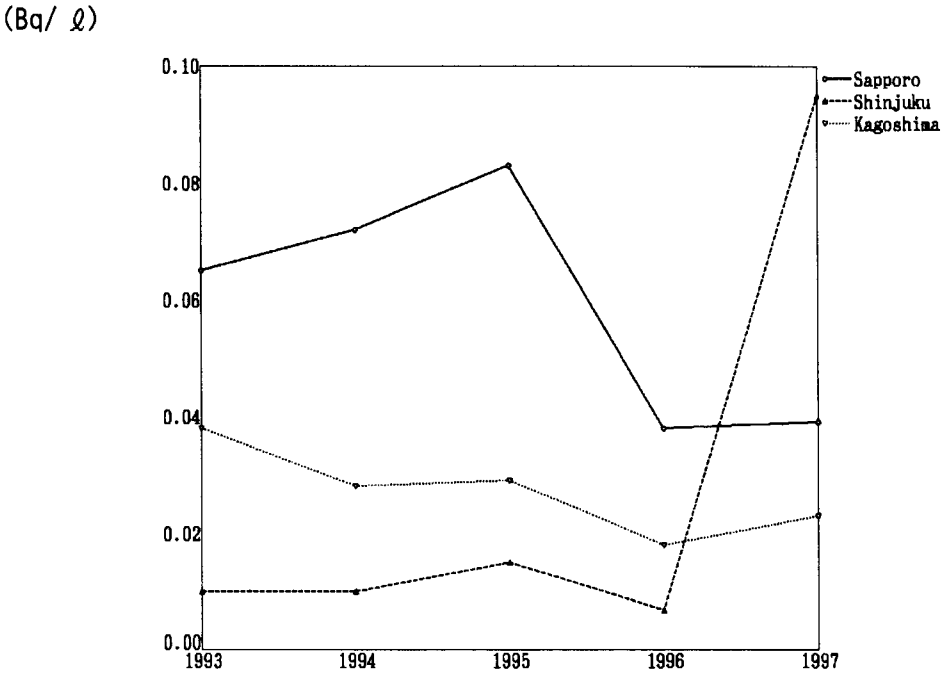

Fig. 3—3

* * Powdered Milk * *

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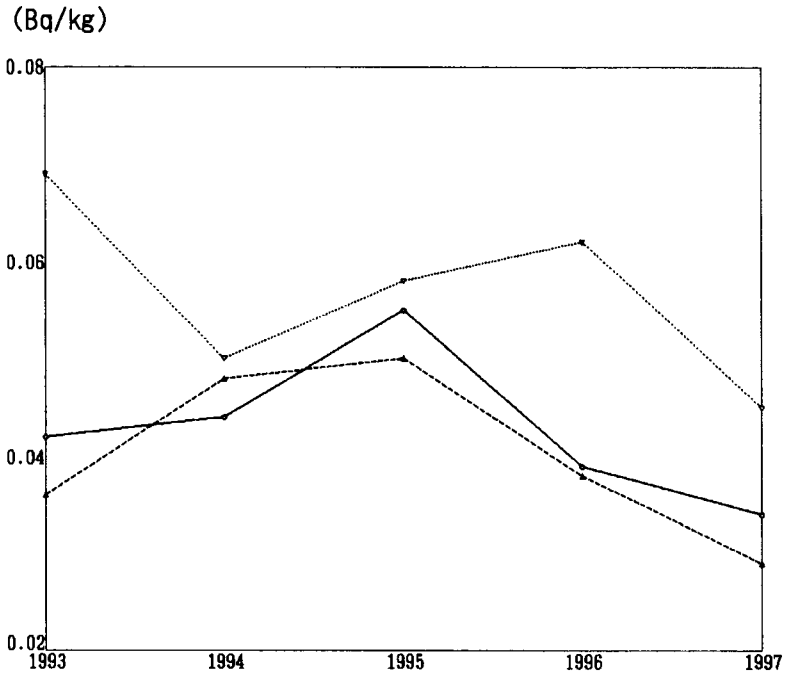

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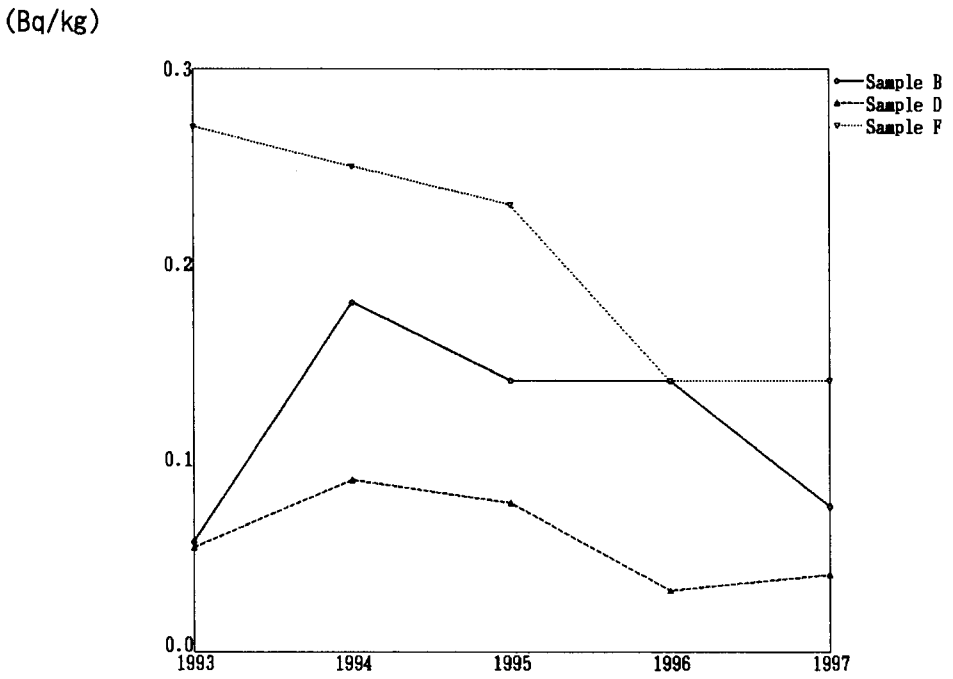

Fig. 3—4

* * Vegetables (producing districts) * *

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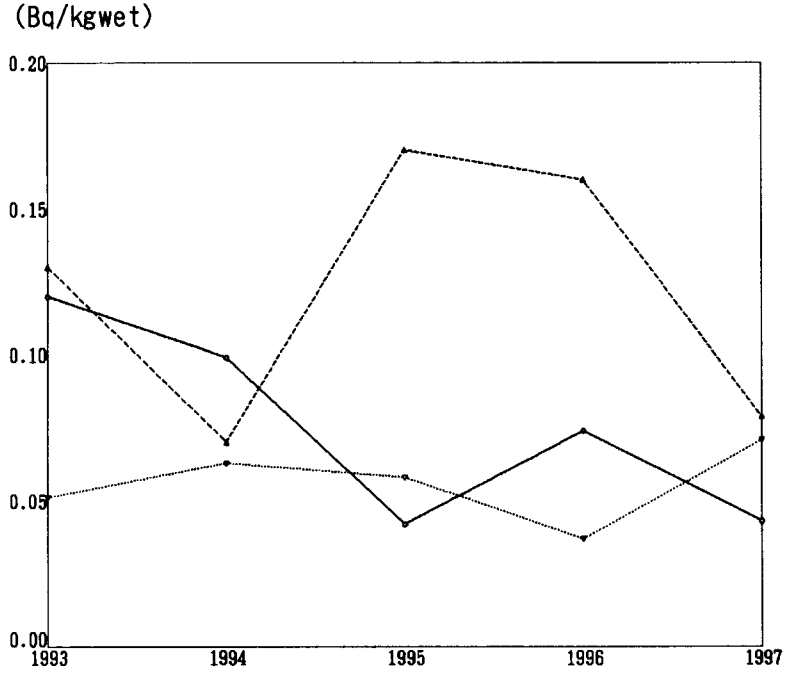

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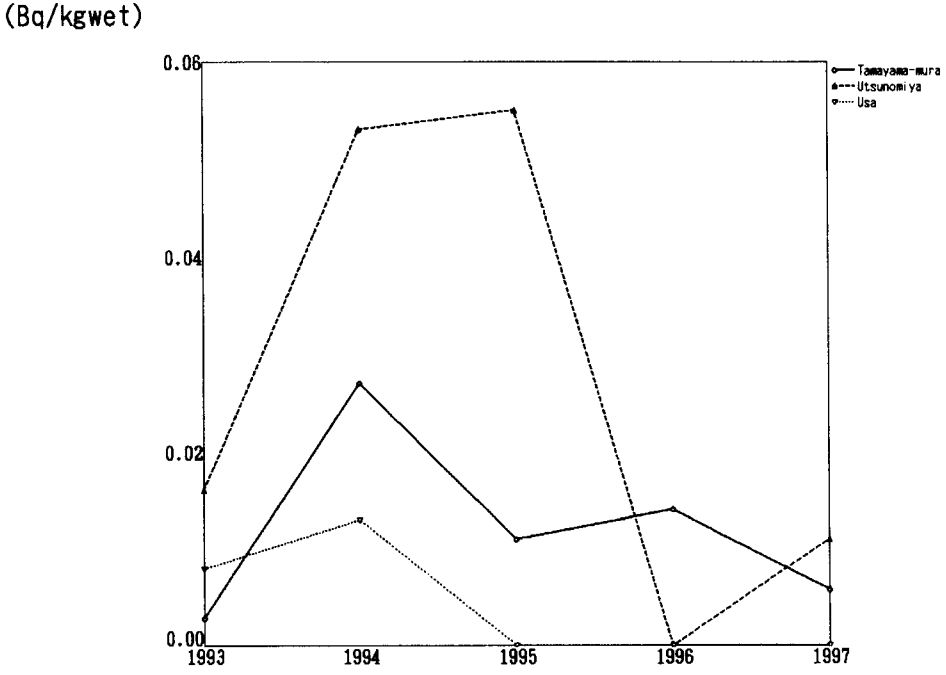

Fig. 4−1

＊ ＊ Vegetables (consuming districts) ＊ ＊

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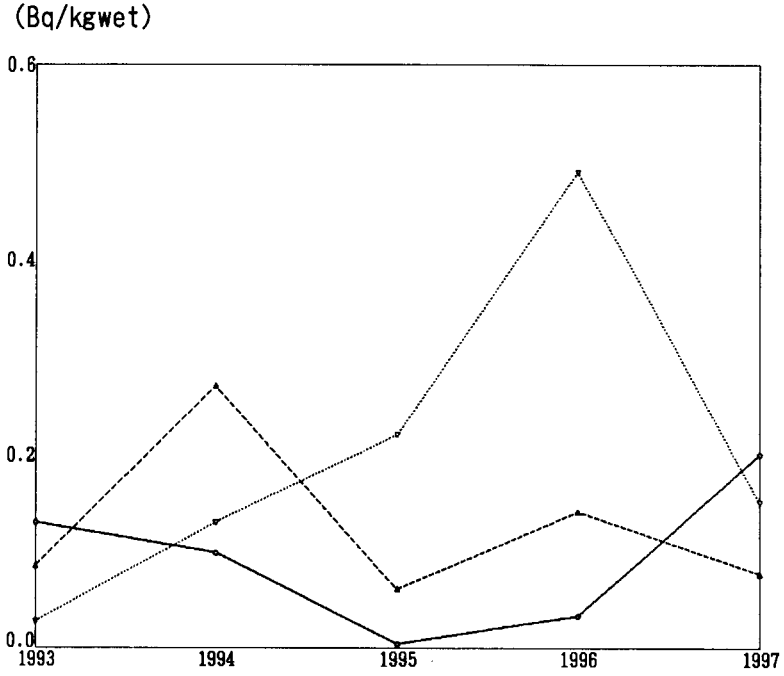

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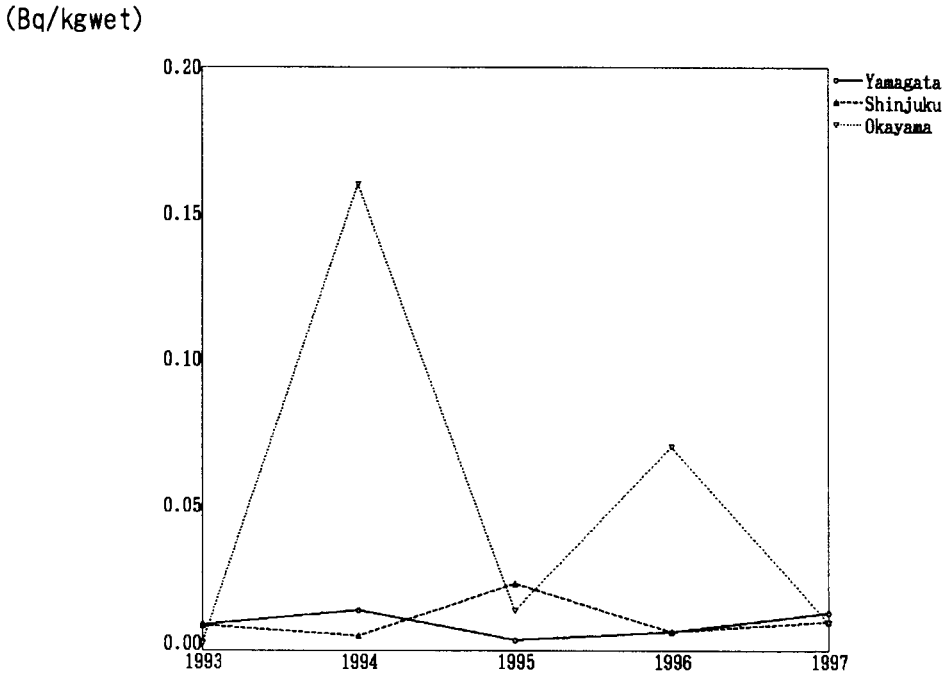

Fig. 4－2

＊ ＊ Sea Fish ＊ ＊

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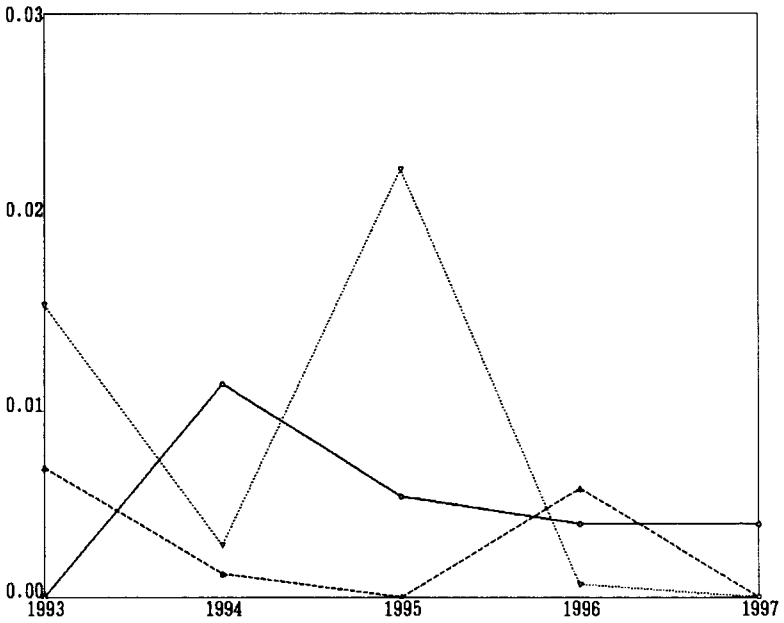

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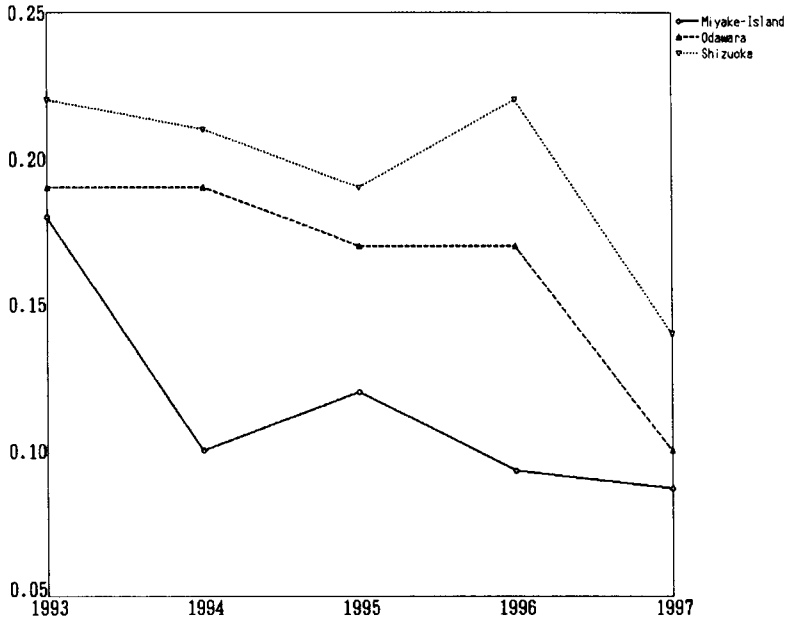

Fig. 5

* * Freshwater Fish * *

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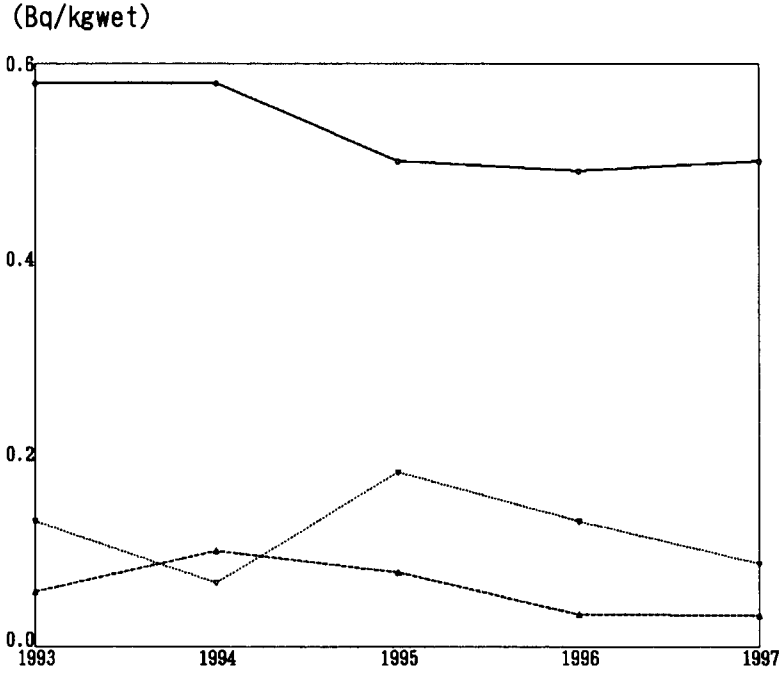

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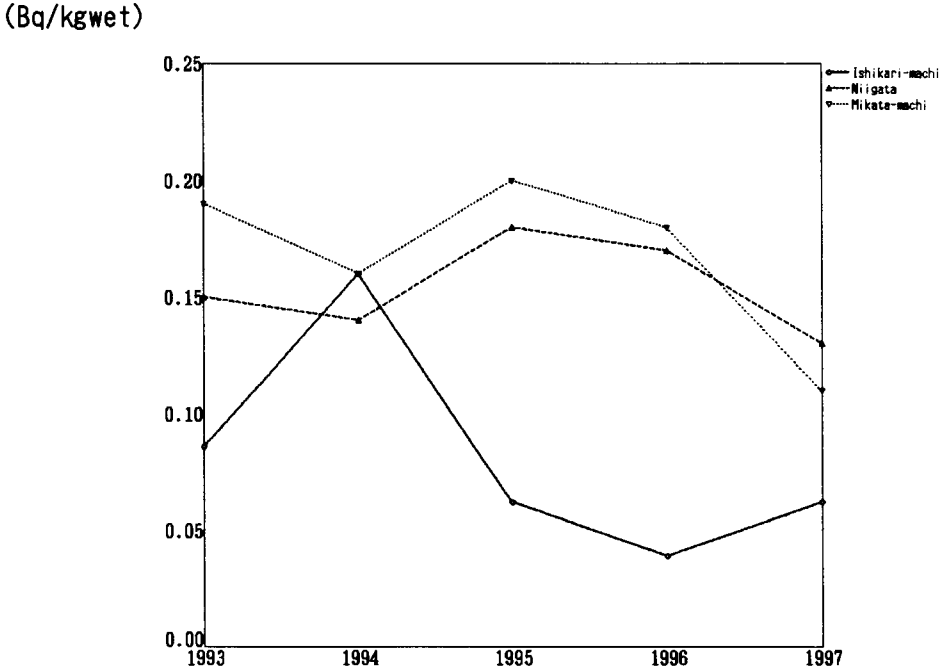
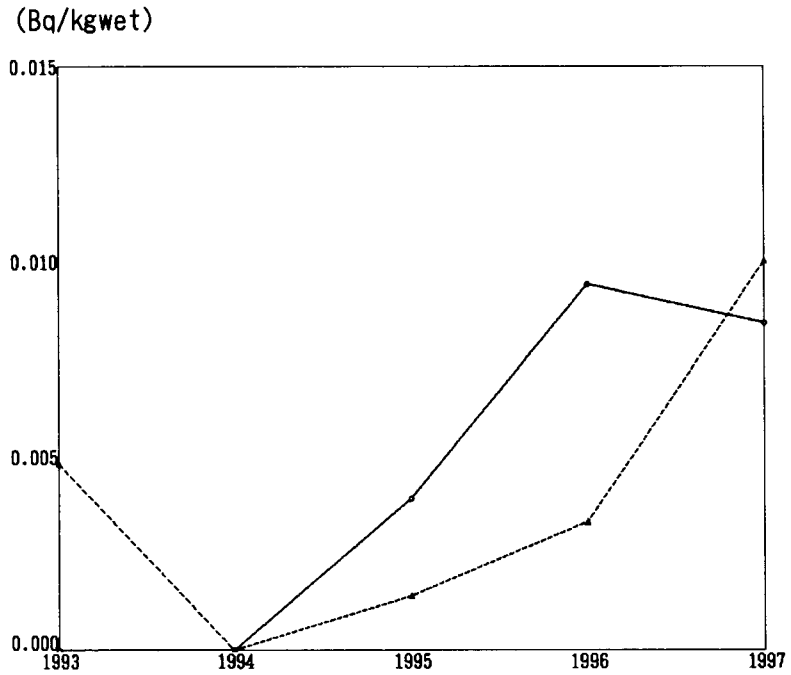


Fig. 6

* * Shellfish * *

<Strontium-90>



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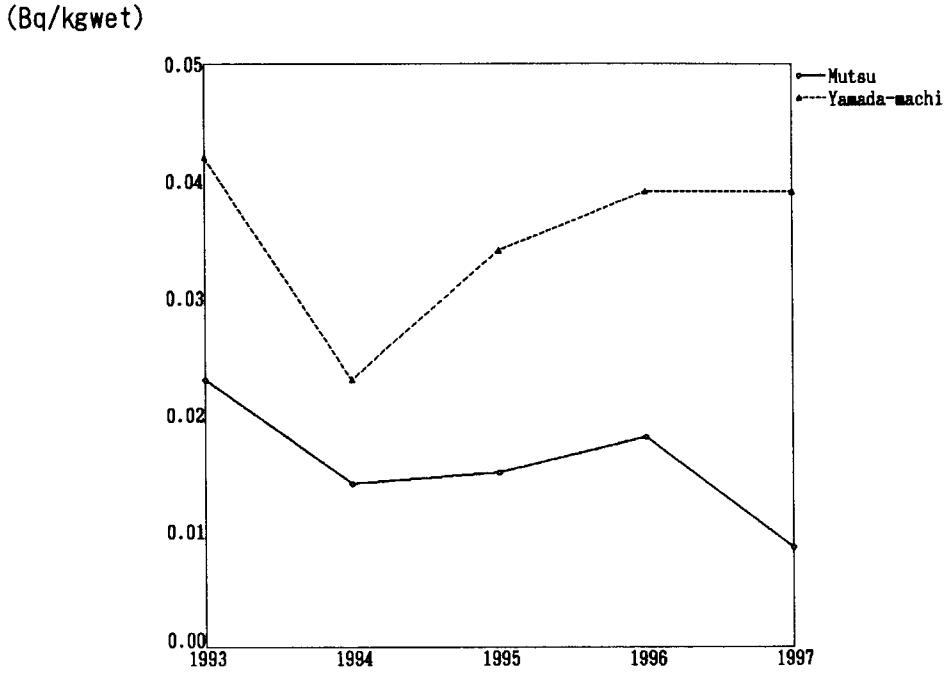
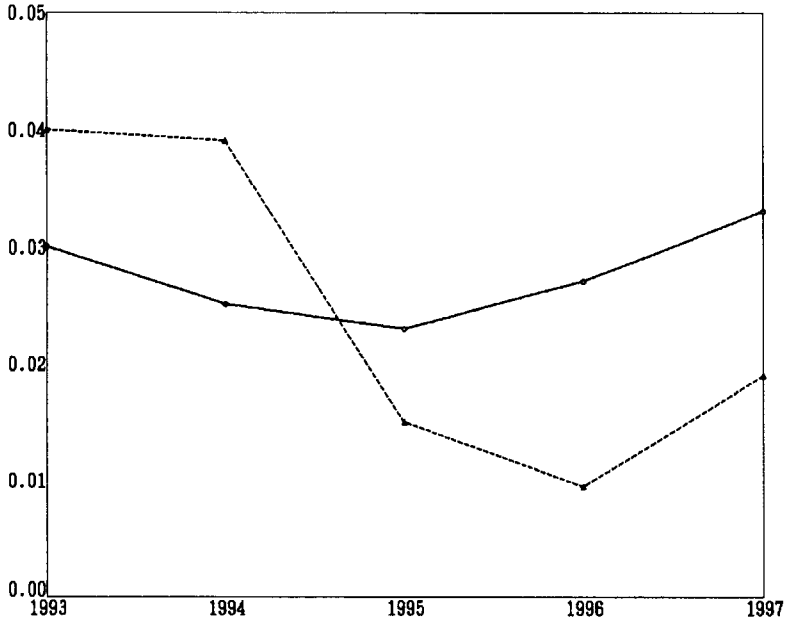


Fig. 7

* * Seaweeds * *

<Strontium-90>

(Bq/kgwet)



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(Bq/kgwet)

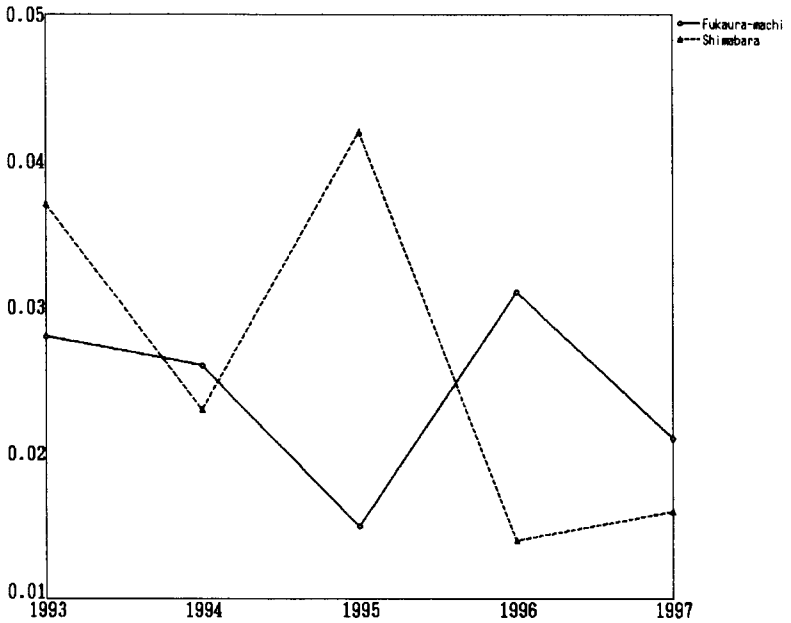

Fig. 8

* * 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