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SMALL-TYPE WHALING IN JAPAN'S COASTAL SEAS

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I. FOREWORD

The Japanese have a long-standing history with whales. Traditions and culture on whales and whaling, fostered over the course of history, have been handed down from generation to generation. There are still some local communities which depend on whaling both from the viewpoint of harvesting and consumption. In these communities, small-type whaling, mainly on minke whales, has been and is practised.

The small-type whaling in Japan is a very localised operation, maintaining the most original form of the Japanese relation with whales. In this sense, the small-type whaling is said to have a similar significance subsistence whaling has to aboriginal people. The purpose of this paper is to describe the nutritional, subsistence and cultural needs of such small-type whaling on a limited number of local communities.

Whaling activities by the Japanese can be divided into three categories. First, factory-type operation on minke whales in the Antarctic; second, coastal whaling using large-type catchers on sperm and Bryde's whales in waters distant from the shore, and third, small-type whaling on minke whales and other small cetaceans in the waters around the coast of Japan.

Japanese whaling, with a long history and tradition, has come to be categorized into these three groups since the Meiji Era in the latter half of the 19th century, when advanced Western technology, the concept of the 'joint-stock corporation', and other economic efficiencies were introduced into Japan.

The whaling industry developed and expanded after the Meiji Era (i.e. increase in catch) as whalers pursued larger profit by introducing Norwegian-type whaling guns, larger-sized and faster-speed whaling boats and meat carrier boats, etc., under modernised management in which the capital, management and labor were separated.

Many of the workers in the whale searching, flensing and gunning divisions in a whaling company came from communities such as Taiji, Tosa, Gotoh and Rikuzen, where people had pride and deep knowledge of whaling and where whaling thrived from ancient times. However, increase in supply of whale meat as a result of increased catch, combined with the progress of urbanization and development in transportation and traffic systems, had weakened the linkage of these local communities to whaling.

Despite such social and economic changes since the Meiji Era, whalers in traditional whaling communities who were left behind in modernization, strived to maintain their tradition by conducting small-type whaling on minke whales and other small cetaceans migrating near the coast — the species which had never attracted the interest of factory-type whaling and large-type coastal whaling. Small-type coastal whaling, therefore, uses small boats and their whaling grounds are limited to waters near the coast. From the viewpoint of whale meat consumption, this type of whaling has a strong tie with local communities where the habit of consuming raw whale meat is still maintained.

II. HISTORICAL BACKGROUND OF SMALL-TYPE COASTAL WHALING

In a small and mountainous island country like Japan, people naturally tended to seek animal protein in marine resources including whale. The importance of marine resources for Japan is quite the same as that of the livestock for Western people. Whale bones have been detected in shell mounds in the Jomon period (ca 10,000 BC-ca 300 BC). Back in that period, revolving hand-held harpoons had been already used to catch whales, sea lions, seals and Steller's sea lions. A primitive picture drawn on bird bones found in a shell mound in Hokkaido shows a group of fishermen in a boat striking harpoons into a whale. In ancient

historical records, such as *Kojiki* and *Manyoshu*, many descriptions of whales and whaling can be found.

It was in early 17th century when whaling was first carried out in an organised way at various parts of the country in a shift from the previous primitive hunting-type catch. Until then, whaling had been conducted based on *tsukitori* method, in which whales had been caught with only hand-held harpoons. Small groups of harpooners, called “*tsukigumi*”, had engaged in whaling on many coasts throughout the nation. An old Japanese saying goes: “Catch of one whale will make seven bays rich”, and whales swimming near the coast had certainly been a valuable resource for poor seashore communities. In the 1670s, a new *amitori* method, in which harpoons and nets were combined, had been developed in Taiji, Wakayama Prefecture, and this method came to be used in other fishing communities as well.

In the Edo Era (1603-1867), whaling bases employing this method were distributed over western Japan, with the number of such bases reaching over 30 in 1820-1850. A whaling base had to be located facing the ocean, in the areas where whales could migrate close to the shore and with presence of a bay into which whale could be chased. Residents near whaling bases had the opportunity to eat whale meat, and the statistics show that their consumption of whale meat is higher than other places even since whaling ceased in those communities.

It was also in the Edo Era when a system was developed, based on year-long wisdom and techniques, to use virtually all parts of a whale body both for food and non-food purposes. Such a close relation to whales is said to be characteristic of the Japanese, and their whaling presents a clear contrast with that in other countries in which whales were killed mainly for taking whale oils.

A team of *amitori*-method whalers had 20 to 40 or at the maximum 50 boats, with the number of workers, including those on land, on ships and part-time employees, totaling 500 to 800. Among the staff were carpenters, tub makers, smiths, sake distillers, and doctors.

Like the previous *tsukitori* method, this method was also primitive in that it was a passive method to await the coming of whales to the shore, so that very small fraction of whale resources was caught.

Late in the Edo Era, harvesting of whales by American whaling fleets in waters near Japan started to have its effects: the number of whales migrating to Japan’s coast decreased drastically, causing declines in *amitori*-method whaling. The American whaling fleets had actively launched into the Pacific since the Japan Grounds were found circa 1820. In 1843, more than 100 whaling vessels operated in the area, rising to over 290 in 1846. Through 1860s, over 100 American whaling boats operated every year, with the average annual catch amounting to about 10,000 whales in the peak period. Main species harvested was sperm whales, but many other species, including right whales on which Japan’s *amitori* whaling depended, were caught.

In the Meiji Era, the traditional *amitori* method of whaling gradually declined, and instead Norwegian-type whaling came to be used extensively in the 20th century. Land stations for large-type whaling were established in various places along Japan’s coast. The large-type whaling harvested whales in waters up to 200 miles off Japan’s coast using engine-powered fishing boats. This type of operation was further expanded in the postwar food shortage period, with the number of land stations rising to 15-20 and the number of whaling boats to 30-40 in the 1950s. Species harvested included blue, fin, sei and sperm whales. Furthermore, factory-type whaling had developed in the postwar years in the Northern Pacific whaling grounds, including grounds around the Bonin Islands and the Bering Sea, because it became impossible to use land stations at the Bonin Islands and the Kurile Islands due to territorial problems. The factory-ship operation had been competing with large-type coastal whaling in the Northern Pacific over catch of the same whale stock until the 1970s when the former was terminated.

Another major development was the starting of factory-type whaling in the Antarctic. In 1934, Nippon Hogeï Co. purchased whaling boats and a mothership from Norway and started test operation in the Antarctic. Between 1938 and 1941, six fleets operated in the Antarctic to harvest mainly blue, fin and humpback whales, marking the prime time for Japan’s prewar factory ship operation in the Antarctic. After a suspension during the World War II, factory-type whaling in the Antarctic was resumed, under policy of the Allied Forces, to cope with the nation’s food shortage, with seven fleets sent to the Antarctic in 1960-1965, exceeding the prewar scale.

Aside from development and expansion of large-type coastal whaling and factory ship operation in the Antarctic, very localized small-type whaling had been maintained by people left behind in the modernization of whaling technology. These people were concerned over retaining local whaling activities. As the traditional *amitori* whaling declined and went out of existence, a new type of whaling, which does not require large capital, developed in Taiji in Wakayama Prefecture. This method uses a whaling boat with a crew of 5 to 7 and harvests pilot whales, which had been used for human consumption since the Edo Era. Originally they used hand-held harpoons, but later tested U.S.-type bomb lances, and then they improved it into a whaling gun with harpoon rope for taking pilot whales (1904). Later, whaling vessels came to be powered by engine (1913). In 1933, operations on minke whales with 5-ton whaling boats each with crew of 5 started in Onagawa, Miyagi Prefecture. These boats, called locally as minke whale boats or *tento* boats, were used in harvesting minke and other small cetaceans in waters up to 20 to 30 miles from the shore. Whale meat produced through this operation is mainly distributed and consumed in raw form in the areas of production. This resembles production and consumption of whale meat among small

tsukitori-method whaling teams scattered all around Japan before the *amitori* method was developed.

In the prewar years, anyone was free to engage in small-type coastal whaling, except Baird's beaked whale harvesting in Boso area in Chiba Prefecture. The number of whaling boats was 20 at the maximum, but their number increased during the war and the postwar food shortage period, reaching 83 in 1947. The Minister of Agriculture and Forestry enforced a licensing system on small-type coastal whaling to restrain the onrush into this operation by many new corporations. This licensing system is still in force today. The size of whaling boats around 1947 was 5 to 30 tons, each with a crew of 5 to 7 aboard. Since mid-1960's when Japan launched on a track to high economic growth, the number of ships engaged in small-type coastal whaling gradually turned down because many new firms moved to shift their small-type whaling operation to large-type operation or other types of fishery. At present, a total of 9 ships are being operated by people who inherit their ancestors' tradition and embrace pride in their profession.

III. PRESENT SITUATION OF SMALL-TYPE COASTAL WHALING

(Comparative observation with aboriginal/subsistence whaling in other countries)

1. Whale Species Harvested

Like whaling in Greenland, Japan's small-type coastal whaling is directed at small-sized and highly reproductive minke whales. On the other hand, subsistence whaling in Alaska is directed at large-sized bowhead whales whose stock had been much depleted in the 19th century by commercial whaling aimed at producing whale oil. The subsistence whaling in the Soviet Union is targeted at gray whales. In the IWC's stock assessment, the whales subject to Japanese and Soviet harvesting are classified as

sustainable management stock (SMS), but those taken by the United States and Denmark are classified as protected stocks (PS).

2. Number of whales harvested

In Japan, the number of whales meeting local needs is 210, out of 320 currently caught. This is not an extremely large number compared with 130 minke whales and 10 fin whales currently harvested by Denmark and 179 gray whales caught by the Soviet Union.

In past records, the catch has been stable since long before 1977 when the IWC established catch quota for minke whales in Japanese coastal waters (Fig. III-1 and Fig. III-2). This indicates the strong linkage of small-type whaling with the needs of specified communities.

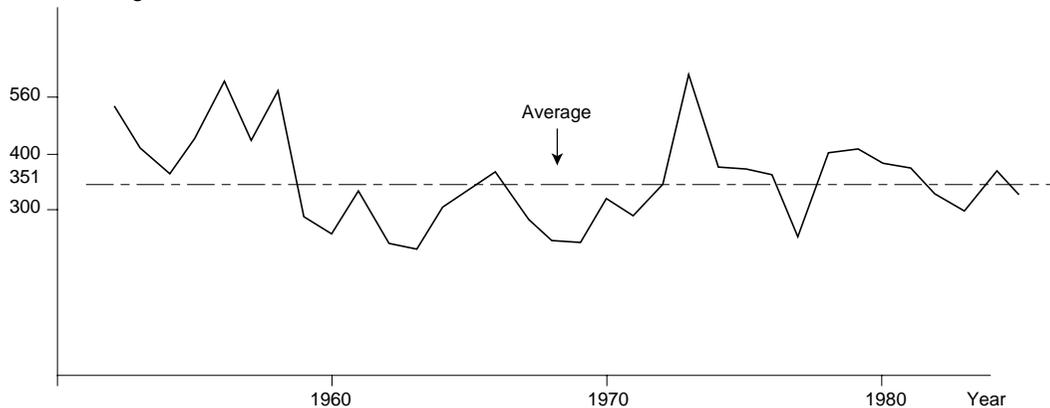
Furthermore, in terms of catch volume, 210 minke whales caught by Japan's small-type whalers correspond to about 600 tons in the weight measurement of whales, while the catch of 26 bowhead whales in U.S. whaling, which has the smallest catch number among subsistence whalings, corresponds to about 1,000 tons of whale by weight (26 whales x 40 tons). The Soviet catch corresponds to 2,500 tons (179 whales x 14 tons). From the foregoing, it may be easily understood that the needs of Japan's small-type coastal operation are modest.

3. Catch Method

Whaling in Japan, Denmark and the Soviet Union is conducted through whaling guns equipped aboard the whaling boats, whereas in the U.S. operation, explosive lances and other equipment are used from hand-rowed boats or motor boats. The use of explosive harpoons in Japan's small-type whaling had been considered very dangerous, but Japanese whalers followed the IWC recommendations to use explosive harpoons after all-out efforts to develop such devices without causing hazards. Operations in the Soviet Union also employs explosive harpoons. Details on the kinds of harpoons used in Danish and U.S. subsistence

Fig. III-1: Changes of Minke Whale Catches by Number of Animals by Japanese Small-type Coastal Whaling

No. of whales caught



Note: Catch limits have been set since 1977

whaling are not well known. In the latter case, there are concerns that a considerable number of whales are being killed after prolonged suffering.

4. Whaling Boats

Japan and Denmark use more or less the same size of whaling boats, between 15 and 50 tons, and the Soviet Union is using large-sized ships of several hundreds of tons. In the United States, very small hand-rowed boats or motor boats are being used, which sometimes cause the bowhead whales to be left unlanded after being struck or killed, resulting in a waste of whale resources.

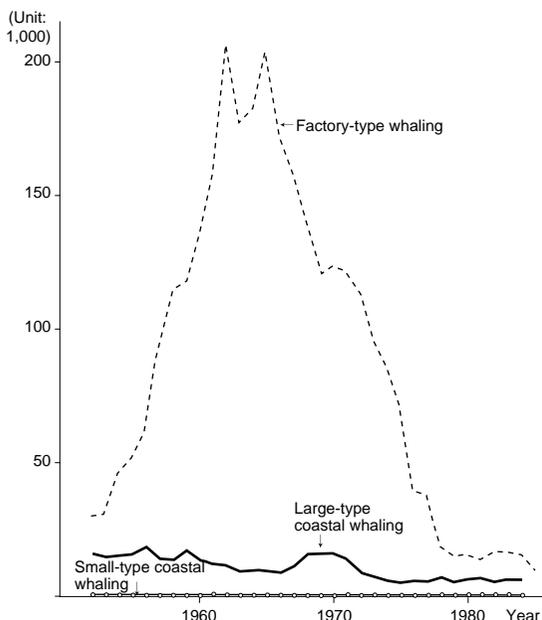
5. Forms of Operation

As in other whaling countries, Japanese coastal whalers operate during the season in which the targeted whales migrate to the Japanese coastal waters (between April and September). Main operation area is 20 to 30 miles from the shore on a daily return basis (Fig. III-3, opposite). Whales harvested are treated in nearby local communities such as Ayukawa, Kushiro and Abashiri-Monbetsu, which have been closely tied to small-type whaling over many years.

6. People Engaged in Whaling

The number of people directly engaged in small-type whaling in 9 whaling boats is 63, with each boat having crew of 5 to 8. Reflecting Japanese tradition to use all possible parts of a whale, there exist 26 people specially engaged in flensing of whales. Such a situation is different from Denmark, the Soviet Union and the United States. Of the combined total of 89, 45 are aged 45 and older, having been engaged in whaling all their life. Most of them come from the traditional whaling communities of

Fig. III-2: Annual Production by Types of Whaling (Meat and Blubber for Human Consumption)



Taiji, Wadaura, Ayukawa, Kushiro and Abashiri-Monbetsu, all of them located in remote places such as the tips of peninsulas.

7. Consumption

Whale products are basically consumed by residents in the areas surrounding land stations, but some surplus is delivered outside these areas.

IV. LINKAGE BETWEEN SMALL-TYPE COASTAL WHALING AND LOCAL COMMUNITIES

There are three components in the current small-type whaling along the coast of Japan. First, to provide minke whales to local communities. The bulk of minke whales harvested are being consumed raw (as sashimi) in the three specified communities. Second, part of the harvest is delivered to regions outside the local communities, particularly to Tokyo and other large cities. This portion cannot be called subsistence consumption by local communities. Third, there are communities which depend, besides minke whale, on Baird's beaked and pilot whales. The consumption of these whales is local, and their taking is outside the competence of the IWC. Therefore, this paper intends to summarize the situation of small-type whaling which covers local consumption by a specified group of people, in other words, whaling for subsistence from the viewpoint of consumption of whale meat by local communities.

Whale meat is mostly consumed in western Japan, particularly northern Kyushu and the Osaka-Kyoto areas, with the bulk of meat from the Antarctic supplied to these areas. However, consumption of minke whales taken in small-type whaling is limited to northern Japan, notably the following three areas (Fig. IV-1, p. 7). There, people utilise virtually all parts of a whale, including the viscera, and the red meat is mostly eaten raw.

- A) Ayukawa in Miyagi Prefecture (Honshu)
- B) Kushiro on the Pacific coast of Hokkaido
- C) Abashiri-Monbetsu area on the Okhotsk Sea coast of Hokkaido

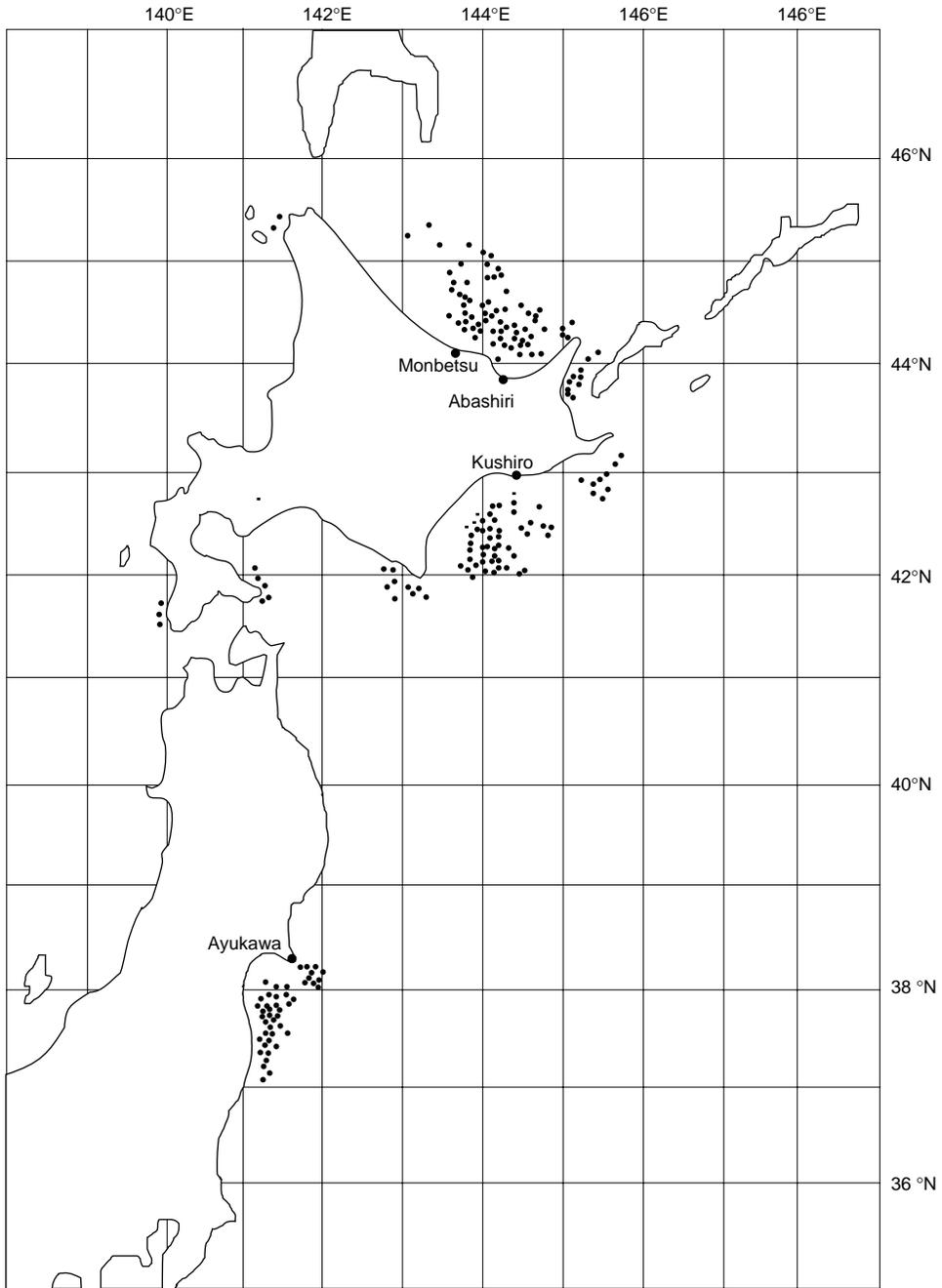
Minke whales landed on the shore of Ayukawa are not transported to Hokkaido, and those landed in Hokkaido are not distributed in Honshu, either.

A) Ayukawa, Miyagi Prefecture

Ayukawa, located at the tip of the Oshika Peninsula, has been a major whaling base in the eastern Japan since early this century, and is still known as a 'town of whales'. Ayukawa has been closely involved with whaling, with many people from this region engaging in whaling. Even though whaling has declined now, there are a whale museum and souvenir shops selling whale-related products in the town. Whale meat consumption in Ayukawa is larger than any other place in this area.

Most of the minke whale meat landed in Ayukawa is delivered to 28 retailers in this area through the Ayukawa Fishery Cooperative and other agents. The retailers are distributed within the range of about 30 kilometers from

Fig. III-3: Distribution of Minke Whale Catches by Small-type Coastal Whaling (1985)



Ayukawa, which could be properly called 'the Ayukawa area'. It includes medium-sized cities such as Ishinomaki. Whale meat has been one of the most important fishery products for these retailers, with trading value during the whaling season accounting for about half of their total sales. The population in this region is about 147,000. When the harvest of minke whales exceeds about 70, the surplus amount will be delivered to other areas, including Tokyo and Sendai. At present, local consumption of minke whales

in the Ayukawa region is said to be at 70 whales. Frozen minke whale meat from the Antarctic is also provided when there is a need.

B) Kushiro, Hokkaido

The fact that whales have been used in Kushiro area from ancient times has been proved by remains from shell mounds, with 90 per cent of animal bones from the shell mounds those of marine mammals, including whales. The average number of minke whales landed at Kushiro port in

recent years is 100 per annum. The meat is distributed by the local fishery cooperatives and several agents. In 1985, harvesting at Kushiro numbered 120 whales, about 20 of which were transported to other areas in Hokkaido, such as Sapporo and Asahikawa. Current local consumption in Kushiro can be considered as 100. The whale meat is being distributed through 110-120 retailers. The population in this area is about 218,000. Outside the whaling season, frozen minke whale meat from the Antarctic is supplied and marketed.

C) Abashiri-Monbetsu area, Hokkaido

People in this area facing the Okhotsk Sea have been using whale meat from ancient times. Particularly during the season of severe cold, salted whale blubber is used with meat in traditional dishes. There are about 140 retailers selling fish and shellfish as well as whale meat, but most of the meat is distributed by peddlers. The population in the area is about 134,000, and recent consumption of minke whales in this area has been 40. Whale meat in excess of this amount is delivered to Kushiro or Sapporo.

From the viewpoint of local whale meat consumption, small-type coastal whaling for subsistence in Japan can be summarized as follows:

- (1) Areas: Ayukawa, Kushiro and Abashiri-Monbetsu, with the number of whales landed in a year standing at 70, 100 and 40, respectively, based on the actual consumption in these areas. Total number of whales landed is 210.
- (2) A total of nine whaling boats are now operating.
- (3) Based on the above catch figure, per-capita consumption of minke whale raw meat (not including that from the Antarctic and imports) in a year is as follows:

Area	No. of Animals	Population	Annual Consumption (kg)	Consumption per capita per year (g)
Ayukawa	70	146,680	101,500	692
Kushiro	100	217,850	145,000	666
Abashiri, Monbetsu	40	133,758	58,000	434

(Note: Yield of meat per minke whale is set at 1.45 tons.)

V. THE NUTRITIONAL, SUBSISTENCE AND CULTURAL NEEDS OF SMALL-TYPE COASTAL WHALING IN THE LOCAL COMMUNITY

1. Nutritional Needs

The Japanese have utilised whale meat as one of the principal sources of protein since ancient times. After World

War II around 1947/48, the consumption of whale meat held 45% of the total meat consumption in Japan, and in the 1960's approximately 2kg of whale meat per capita was consumed per year. Since then, because of the tightening of catch restrictions, the supply of whale meat has gradually declined; accordingly consumption had to be reduced. The significance of whale meat in Japanese dietary habits, however, is still very important at present.

(1) The role of whale meat as food in the community

a. As source of animal protein:

Whale meat holds 1.7% of the total national intake of animal meat protein in Japan, which is approximately 11.6g per capita per day (in 1981). In consideration of the protein value contained in the whale meat as shown in Table V-2, (23g of protein per 100g of whale meat), the Japanese consume 320g of whale meat per capita per year. The dominant part of this consumption relies on the supply of frozen whale meat from the Antarctic or other areas. For the local communities in question alone, as shown in the Table V-1, the locally obtained raw minke whale meat is consumed in addition to the average national whale meat consumption of 320g, mainly consisting of frozen meat, the total of which would amount to approximately three times as much as the average of the annual national whale meat intake per capita in Japan. This accounts for the ratio of the whale meat consumption in proportion to the total intake of animal protein, which is also shown in Table V-1.

In comparison with the peak period when whale meat was the major source of protein, the proportion of whale meat in total protein intake has been reduced, because of the tighter catch restrictions which have curtailed the supply of the whale meat. The demand for whale meat, however, is still very high and is regarded as the most important part of the diet to these communities, in spite of the present scarcity of supply.

b. Sustainment and improvement of the nutritional balance:

As shown in Table V-2, compared to other animal meat, whale meat contains not only high value of protein, but also balanced essential amino acids making it a very nutritious food. It is also rich in vitamin A which is important for growth, and the resistance to skin and eye diseases (Table V-3; see p. 8 for tables). Another important value of whale meat is the low content of cholesterol (Table V-4), and fat (Table V-2). This means that whale meat is useful for prevention of such adult diseases as myocardial infarction and arteriosclerosis; all that suggests that whale meat is not just a protein source, but important for the sustenance of the health of those whose diets have relied upon it. A report by an immunologist has suggested that in a region of Greenland with predominantly Innuut population of 1,350, only 3 were reported to have died of arteriosclerosis-related heart diseases. It reported that the Innuut whose regular diet is based on fish and sea mammals have higher EPA value in the blood compared to other Danish populations and their blood is hard to coagulate.

Fig. IV-1: Locations of local communities with small-type whaling on the coast of Japan



(2) Possible alternative food in the community

a. Alternative food from the nutritional viewpoint:

It is possible to consider fish, shellfish, and other animal meat as alternatives for whale meat. However, fish has lower amino acid content and lower protein value, while other animal meats have higher cholesterol and fat making them less desirable as an alternative. In consideration of the foregoing, there is no suitable food as an alternative for whale meat.

b. Alternative food from the viewpoint of cultural habits:

The Japanese have had almost negligible cattle-farming

tradition mainly due to the Buddhism background which prohibited eating animal meat freely. Because of this tradition, the Japanese have depended on fish as a major protein source. However, unlike animal meat, availability of fish was more dependent upon the region and the seasons, so that instead of utilising the same species over a geographically extensive area, the Japanese have developed their dietary habit of using what is available within the limits of the season and the locality. Because of this tradition, there are many cases in Japan where a certain food is regarded with unreplaceable importance to the certain local community, while the same food may have little value to

others. Each local community keeping different sense of value as regards the different kind of food is a tradition deeply rooted in Japan even today under the highly developed distribution system.

Particularly, for the three areas treated in this paper, the sense of attachment to whale meat which has developed traditionally in the local communities since ancient times through their long history of whale harvesting is so deep that it is extremely difficult for the local community to find any alternatives. The following are examples by which the local communities manifest their deep and traditional attachment to whale meat. (a) When whale meat is made available at the local market (usually in the fish-shops), other items such as fish and shellfish are left unsold, at the same time the sales of the meat-shops drops suddenly. This illustrates well how much the local communities prefer whale meat to other food items. (b) The local fishermen demonstratively prefer loading whale meat to other food items on board their boats for their own consumption, because they regard it as more preservable and safer from food-poisoning. This suggests that the significance of whale meat is high not only because of the traditional habits, but also as a necessity for working conditions. (c) A kind of potpourri called *kenchin jiru* using *unesu* (ventral grooves) is indispensable for the festivities of the new year in eastern Hokkaido. In Japan the new year festivity is the most important of all events of the year; it is comparable to Christmas in the Christian culture, and is extremely important as the time for family unity celebrating together the coming of the new year. (d) As the preference of whale meat is so high that it is very difficult to obtain it even within these localities, some of the fishermen's co-operatives make arrangements with whale hunters taking advantage of personal connections, so that they may receive priority in the supply of whale meat. This is an example of a strong preference of whale meat in the local community.

2. Subsistence Needs

(1) Occupational needs for those engaged in whale hunting, flensing and marketing of the meat

Though smaller in scale in comparison to other types

TABLE V-2: Protein and fat contents of various kinds of meat (100g)

	Whale meat	Beef	Pork	Chicken	Egg
Protein	23 (g)	19	17	19	12
Fat	3 (g)	13	21	14	11

(by National Census of Nutritional Intake in 1983)

TABLE V-3: Vitamin A Content (Intil unit per 100g)

Whale meat	base meat (frozen)	500
	red meat (frozen)	120
	ventral groove	150
Beef	round rib	30
		15
Pork	ham	10
	rib	10

TABLE V-4: Cholesterol Content (mg%)

Whale meat	red meat	31
Beef	round loin	75
		74
Pork	rib	118
	ham	64
Fish	mackerel	59
	flat fish	51
	salmon	88
	yellow tail	53

TABLE V-1: Consumption of the whale meat and its ratio against intake of animal protein in the local communities

Area	Population	Annual Consumption of Minke Whale Meat (raw) (kg)	Consumption per capita per year (g)			Ratio Against Annual Average per capita Intake of Animal Protein
			Locally Obtained Raw Minke Whale Meat	Average National Intake of Whale Meat (mainly frozen)	Total	
Ayukawa	146,680	101,500	692	320	1,012	5.5%
Kushiro	217,850	145,000	666	320	982	5.4%
Abashiri, Monbetsu	133,758	58,000	434	320	754	4.5%

(Note: Yield of meat per minke whale is set at 1.45 tons.)

of whaling, there are a number of people whose livelihood depends upon the local small-type whaling and related work. As already pointed out in this paper, these three areas in question are all remote from urbanization: having been struck by the massive emigration of the younger labor out to the more urbanized regions following rapid industrialization in recent years, they are left in the state of so-called 'demographically forsaken environment'. The situation such as this almost entirely precludes any opportunity of alternative employment.

Those who depend on small-type whaling for living can be classified into the following three categories:

- a. The people directly engaged in whaling and their families; those who are directly dependent on small-type whaling for living.
- b. The people engaged in the distribution of whale products and their families.
- c. The people engaged in the processing and selling of whale handicrafts in the township of Ayukawa where whaling has been traditionally the key means of living.

a. People directly engaged in whaling:

A total of 89 persons are engaged in whaling, including those working on board 9 boats, and those at the flensing station on land. With their families amounting to 192, the population under this category is 281 in total. The age structure of the direct labour is:

Age	20 to 29 = 9
	30 to 39 = 19
	40 to 44 = 16
	45 to 49 = 14
	50 to 54 = 16
	55 and over = 15

The age structure shows a bias toward the higher ages, suggesting the specialisation of the job and their year-round engagement in whaling through all seasons, with few cases of transfer to other jobs or other fisheries.

b. People engaged in the distribution of whale products:

The outlets of whale products to which the wholesalers and retailers distribute the products are fixed and show little variation. However, they sell other products, and do not handle whale products throughout the year. Their job for one year is comprised of distribution of other fish species as well as whale products. The degree of distribution's dependence on the whale product varies from area to area, but over all the areas the distribution of whale products maintains very important proportion of the total transactions. The structure of the population under this category is as follows:

(Abashiri-Monbetsu area)

Wholesalers	5
Employees of the wholesalers	24
Their dependents	87
Retailers	144

(Kushiro area)

Wholesalers	2
Employees of the wholesalers	220
Their dependents	678
Retailers	114

(Ayukawa area)

Wholesalers	4
Employees of the wholesalers	311
Their dependents	1,057
Retailers	28

The Ayukawa area has limited population and area, but consumers in general are strongly interested in whale products. The retailers in this area are mostly door-to-door salesmen without shops.

c. People engaged in the processing and selling of whale products in the township of Ayukawa:

In Ayukawa, 5 persons are engaged in processing and selling of craft-works using whale parts, with 18 dependents whose living relies upon whaling.

In addition to the above figures, a large number of people in the communities are engaged in whaling-related jobs such as ship chandlery, vessel repairs and others.

(2) Whaling and the people in the community

The type of whaling conducted before the Meiji period (1867-1912) such as Ayukawa's *tsukigumi* (hand harpooners) type, or more organized Taiji's *amitori* (net capture) type whaling were entirely indigenous to the local Japanese community without any influence of European or American whaling techniques. It is evident that these native whalings played an important role in the life of the local community in nutrition, subsistence and culture. What these types of native whaling meant to the local community was akin to what the aboriginal/subsistence whaling means to the Inuit community, and can be recognized as such.

In comparison to the present-day Alaskan Inuit whaling, however, the Japanese native whaling had its idiosyncracies: that is, in Japan from the very early stage of its development, whaling was conducted in a system of specialized labour: the groups of the specialists such as the one consisted of whale hunters, or the one consisted of flensing workers, were responsible for each division of the labour within the whaling activity. The labour-divided system of the local economy also extended to other sectors of the population in the community in that some people were working in the farm, others working as merchants, and they all paid due respect to the whaling specialists and obtained whale meat from the whalers in exchange for their own products or merchandise. Although the present-day community in Ayukawa live on the monetary-based economy instead of a barter-system, the basic intra-community dependence on each different occupational division still remains the same today.

Let us draw a mental picture supposing a case to compare Ayukawa with a village in Alaska under an assumption that IWC has imposed mandatory termination

of their whaling.

“In a village in Alaska, the average income per family in the community amounts to U.S. \$33,000. The whaling action is not their occupation, so that the villagers do not depend upon whaling in an economic sense. The cessation of whaling, however, would deprive the people of the opportunity of participation in the whale hunts, or the traditional whale-meat-sharing ceremonies so that a greater number of people in the community would lose the opportunity of tasting the whale meat. Feeling of anger, void and sorrow would prevail over the village.

“In Ayukawa, the community would be struck with sorrow and anxiety, because the whaling activities no longer exist. Not only the opportunities for the people to taste the whale meat are lost, but also the fact that the community’s economy, and livelihood have depended upon whaling and the related business such as selling of the whale products, would affect the psychology of the people immeasurably. As the centuries of whaling-dependent living is terminated, the solidarity and the morale of the people would be seriously damaged.”

From this viewpoint, there is no basic difference in the nature of the effects of the cessation of whaling between the two cases. Furthermore, in the case of Ayukawa, the immediate economic damage and its social consequences as well as the psychological effects would be even greater.

3. Cultural Needs

(1) Food culture

Dependence of the Japanese on whale as a source of animal protein has already been mentioned in earlier chapters in relation to Japan’s geographical and historical backgrounds.

In the archives of the cooking recipe, there is *Geiniku Chomi Kata* (Whale Meat Cooking) published in 1830, in which as many as seventy recipes for whale meat and internal parts were introduced. In this publication, we read that a variety of recipes depending upon the locality and culture of the community were practised, each showing the wisdom for preservation and wasteless utilization. It is noted that in the regions where whaling was conducted, the people used to prefer taking whale meat raw and internal parts simply boiled. This kind of simple recipe has been a traditional preference for the people in the neighbouring areas of whaling ports such as Ayukawa even today; they consume sliced whale meat sashimi (raw meat) marinated in soy sauce,

These dietary habits which have been deeply rooted in history show that whale meat has not only been just a protein source for the Japanese but also has been treated as a delicacy with ethnic and social significance. For instance, whale meat cooked in soy sauce and sugar, called *yamatoni*,

is counted by the Japanese school children as one of the five most favourite menus of the school lunch, and whale meat stew with *mizuna* (a kind of water cress) called *harihari nabe*, and a kind of potage cooked with the blubber and tongue and other whale parts called *kanto-ni* are still very popular in Osaka, the third largest city in Japan, as the local specialities. In the areas where whaling has been conducted traditionally, these dietary habits have grown so much an integral part of the community that no local ceremonies or festivities pass without serving some whale meat delicacies.

(2) Social needs

The Japanese people have mixed feelings about the whales, because they have utilized whales as food and for many other purposes since ancient times; their feelings are a mixture of a deep appreciation, kind of intimacy, and even reverence. The whales have grown as a natural element in the life of the Japanese through the religious ceremonies and festivals, particularly for the communities where the local people’s lives have depended on whaling activities. Their feelings are manifested in various ways; in their gratitude to god for giving them such precious gift as the whale resources, or in form of atonement and reverence to the whales expressed in Buddhism ceremonies. All these are the expressions compelled by their attachment to the whales because of their centuries-long utilization of whale resources. A visitor to a traditional whaling town would marvel at the variety of religious expressions everywhere from small monuments to gigantic whale statues in the Shinto shrines, or Buddhism temples or in the most scenic spot available in the township. At the time of the community festivals, Shinto rituals or Buddhism services are held, a parade of whale floats is staged, whale models in miniature are floated on the waters, to comfort the spirit of the killed whales. In Ayukawa, each household of the community is obliged to send at least one person to participate in the whale dance held annually at the local ‘whale festival’. There are traditional whaling communities where people keep the folk dance and songs with the theme of whales through the centuries as their local heritage; most of these folk songs were originated by the whalers while engaged in whaling activities, and have expressions of gratitude to a Shinto god (nature) for offering precious whales.

These facts stated in the foregoing show that the local communities have been benefitted by the whales which in turn contributed to the solidarity of the community as the religious symbol. It is noteworthy that during the Edo Era, when the feudal caste system was the foundation of society and the people were afflicted with the rigid ranking of the four social classifications, *shi* (warrior), *noh* (farmer), *koh* (craftman), and *shoh* (merchant), excluding the fishermen as an unrecognisable social caste, the whalers were treated as exception to the system. Some whalers were permitted to carry swords, which was a privilege only allowed to the warriors. In some cases, the feudal lords directly

operated as entrepreneurs to manage the whaling. Under these circumstances, the whalers were the chosen professionals within the society, and were the proud key-figures of the community possessing highly developed sense of solidarity. The whalers' high social status as described above is well reflected in the anthem of Taiji elementary school written in the Meiji Era, which reads "When we grow up, we all want to be whalers". All of the important positions involved in the whaling activities in the community were patrimonial. Such occupational titles as *seko* (harpooner), or *tohmi* (whale watchman) have survived as surnames to the present day. It should be remembered that the majority of the families engaged in whaling and the related activities are the descendants from these professional whalers of ancient times.

In conclusion, the tradition of whaling in the community is a complex and deep-rooted socio-economic element based on the long history of religion, custom, and social behaviour which have survived through the centuries to the present day, on which the solidarity of the entire community has been built. It is extremely difficult to establish any rationale with which to destroy such solidarity by the prohibition of whaling.

VI. CONCLUSION

The following three reasons account for the persistent utilization of whale meat by the Japanese as one of the valuable sea-foods since the ancient times.

1. Surrounded by the seas all around the country, the Japanese have found rich resources in the ocean.
2. The land areas of Japan are not suitable for development of livestock farming because of the predominantly mountainous topography within the limited space.
3. The religious reasons prohibited eating of land animals.

The Japanese have formed unique food culture through their centuries-long utilization of whale meat and parts.

Whaling in Japan has been developed in the areas with easy access for the whales to come close to the coast allowing favourable grounds for whale hunts. For the poverty-stricken fishing villages and towns, the whales were highly important as a source of health and wealth. The whales played a significant role to these communities as the cause for solidarity through various religious and local customs.

After the Meiji Restoration (1868), some whaling activities began to develop themselves from the coast to the far seas, and onto the pelagic operations, while others have remained within the traditional areas to the present day operating as small-type coastal whaling. This small-type whaling serves as a supplier of whale products mainly to the local community, and still plays an important role as the basis of solidarity in the community.

From this viewpoint, the nature of small-type coastal whaling in Japan resembles closely to the aboriginal/subsistence whaling as classified by the IWC. In this sense, it would be reasonable that the Japanese small-type coastal whaling should be given a similar right to that which the IWC gives to the aboriginal/subsistence whaling. Therefore, the Government of Japan requests that the catches of minke whales of 210 animals at the maximum per year be allowed to the Japanese small-type coastal whaling to satisfy the subsistence needs of the local communities. This catch limit is very moderate in consideration of the following:

- (1) It accounts for only a 2% in weight of the present level of total Japanese whale catches.
- (2) It is not too high in comparison with the catches currently made by other aboriginal/subsistence whalings.

