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SOCIO-ECONOMIC IMPACT COUNTERMEASURES IN THE FOUR JAPANESE STCW COMMUNITIES

The Government of Japan
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INTRODUCTION

This report is designed to answer questions asked at IWC 41 concerning the degree to which countermeasures have been implemented to minimize the various individual, family, and community impacts associated with the zero-catch quota imposed in 1988 on minke whaling in Japan's coastal waters.

A comprehensive impact assessment was presented last year (IWC/41/21 and IWC/41/SE1) centered on the four STCW communities situated at Abashiri (in Hokkaido prefecture), Ayukawa (Miyagi), Wada (Chiba) and Taiji (Wakayama). This report will not repeat the detailed findings presented last year though a brief summary of conclusions is provided below, and those items pertaining to the STCW situation contained the Executive Summary of IWC/41/21 are provided as Appendix 1 for reference.

SUMMARY OF IMPACTS OF MINKE WHALE ZERO-CATCH QUOTA

A short summary of Japan's presentation to last year's Working Group on Socio-economic Implications of a Zero Catch Limit is provided in the Chairman's Report on IWC 41. In the interest of conciseness, this summary is reproduced here.

> Japan reviewed the socio-economic implications of the moratorium in its country. It was pointed out that the moratorium affected the spiritual, psychological, physical and cultural well-being of people who depend upon whaling. A report prepared by Japanese and foreign social scientists characterized the socio-economic dislocations at four levels; the individual, the family, the community, and at general (national) levels. While pelagic and large-type coastal whaling stopped in 1987, small-type continued until 1988 when Japan implemented a zero-catch limit for minke whales. In Japan the zero-catch limit has affected individuals economically, socially, culturally and in respect to health. The effects include disruption and failure of small businesses, job loss and employment at less valued positions and/or limited work in temporary or seasonal positions. Because of the nature of small-type whaling the zero-catch limit affects individuals in small villages more than in the industrial centres. The small size of the local economy has required physical moves for individuals and families in order to find employment. High levels of unemployment for former whalers result from the highly specialized nature of their work and barriers to re-employment due to age and the particularities of Japanese employment and fisheries practices. As whalers enjoyed prestige, their job loss is especially stressful. Within the family interpersonal stress, disruption of rigid gender related division of labor and stress on children occurs. Local businesses depending on whale products have been severely affected and the loss of revenue threatens the survival of such institutions as fishery cooperative associations. Tourism is highly dependent upon the availability of whale meat which also plays an important role in religious observances and community celebrations. These impacts pose a serious threat to the continued survival of these traditional small communities. (Chairman's Report of 41st IWC Meeting, page 4)

The Chairmans Report indicated that in discussion there was a recognition that the reported socio-economic impacts were of a serious nature and that it is a

responsibility of government to address these difficult situations. It was also noted that some dislocations cannot be satisfactorily remedied and that cultural, traditional and religious lifestyles may be irreversibly changed as a result. The report concluded "the impacts of zero-catch limits are greater in sociological terms in rural areas where local economics and traditions are linked to the natural resources, than in large and more industrialized communities." (*ibid*: 5)

COUNTERMEASURES TO REDUCE IMPACTS

Since the imposition of the zero-catch quota, effective April 1988, a number of actions have been taken by the whalers, and local governments in the four STCW communities and by the national government. This report will provide information on the measures adopted and assess the results.

Individual initiatives

(1) **Fish-farming**: Salmon-farming was started in Ayukawa by one of the large-type whaling companies as a means of providing employment to some of their former employees when commercial whaling ceased; only four former large-type coastal whalers could be employed, and some small-type coastal whalers have found seasonal, part-time work in salmon farming. Three small-type whaling boat-operators (one from Ayukawa, another from Wada in association with an Ayukawa partner) entered this business in 1988; by 1989, a total of 1,640 tons of salmon were produced in Ayukawa by several small and larger scale operations.

In 1988 salmon farmers received ¥900/kg. but the price dropped to ¥620 in 1989. All three STCW-associated companies reported losing money in 1989, and since then one has declared bankruptcy and the other two have indicated they cannot continue losing money for another season.

Local production costs in Ayukawa are calculated at about ¥800/kg. which unfortunately was the retail price of the preferred wild red salmon imported from Alaska. The less preferred farmed coho salmon was only selling at ¥560/kg (or 75 percent of the cost of production). One STCW boat operator has produced 420 tons of coho salmon over the past three years yet has registered a cumulative loss of ¥50M ($350,000) in his salmon farming business over that time period.

The reason for the failure of salmon farming in Ayukawa is the high production cost, the availability of preferred wild salmon at lower cost, and the world glut in farmed salmon driving the cost down further each year. Oshika Town had allocated ¥10M in loans to those wishing to engage in salmon farming but it seems evident that this money will not now be recovered.

Last year it was reported (IWC/41/21: 5) that some former whalers were earning about two-thirds of their previous wages through employment in salmon-farming. Unfortunately, as the situation described now indicates, that particular employment option is unsustainable for those former whalers and their reduced level of earnings has only been provided at the expense of the economic viability of the company employing them which will likely not continue in operation much longer.

(2) **Other fishery activities**: Two STCW operators have attempted to use their boats for other fishing activities. One Taiji-based boat attempted to fish for tuna, but to do so required investment in expensive new equipment and a test season indicated that no profit was to be made. In fact several local and experienced tuna-fishing operators have recently gone bankrupt, so the prospect for a former STCW boat operator succeeding and paying for required capital expenditures are, realistically, quite low.

(3) **Economic rationalization**: The main economic option followed by STCW operators since the minke zero-catch quota reduced the whale harvest tonnage by almost half has been to form partnerships in order to more rationally harvest Baird's beaked whale and pilot whales (see Table 1). This has allowed pairs of boat-owners in partnership to operate only one of their tow boats with corresponding reduction in operating costs. Crew members have been laid off and maintenance work on the boats has also been reduced to a minimum. In this reduced-scale operation, the partnerships returned to modest profitability in the 1989 season, in contrast to the losses incurred by six of the eight boat operators in 1988 of ¥63.4M ($420,000).

Table 1: Provisional Partnerships formed by STCW companies, 1990

	Boat crew	Land Worker
Ayukawa company	6	2
Ayukawa company	0	1
Ayukawa company	7	8
Abashiri company	0	3
Taiji company	4	1
Abashiri company	0	0
Wada company (2 boats; one only operates)	7	7
Taiji FCA (did not operate in 1989)	?	?

Source: Japan Small-type Whaling Association

Local government initiatives

Inquiries at each town indicate that local plans are underway to promote economic development. The small towns (Ayukawa, Taiji and Wada) have experienced more profound impacts caused by the reduction in coastal whaling activity than has the larger town of Abashiri. In the case of Abashiri, impacts are concentrated primarily in the core whaling community (the whalers and their immediate families, and some associated small businesses) and secondarily, and (as with the Ayukawa-

based fishery) more widely, among the large number of consumers of the fresh whale meat. In view of these differing circumstances, it is evident that Ayukawa, Taiji and Wada municipal governments have made greater efforts to institute countermeasures to the negative impacts than have the town officials in Abashiri (however, see below under Tourism Development).

(1) **Ayukawa**: This STCW town (population ca. 2200) has been the most seriously affected of the four towns by the moratorium on commercial whaling and the 1988 imposition of the STCW minke whale zero-catch quota.

One local government initiative has been to try to develop a tourist attraction in the hope of attracting a larger share of the domestic (Japanese) tourist market. The center piece of this local initiative has been Whale-land, an amusement area with a whale and whaling theme. Dominating the amusement area is a landed catcher boat, and other attractions are planned to be constructed in the future.

The main problem associated with tourism development in Ayukawa is the lack of easy access to the town and the absence of additional tourist attractions in the immediate area (see below under Tourism Development).

A serious problem is the town's remoteness; tourists arriving at the closest rail station have likely already travelled some distance from populated urban centres, and from the rail station they must undertake a two-hour car ride or use the infrequent and slower public bus system.

Ayukawa serves as one base for reaching a well-known island shrine (Kinkasan), but many tourists choose to sail from the neighboring town of Onagawa (which has better road access to the railway) after which they may not choose to leave the better road or extend their trip by visiting Ayukawa.

Local people believe that in view of the problems of access, exploiting Ayukawa's special appeal as a 'whaling town' will depend on more than the presence of a whale-motif amusement park, and, in particular on the presence of active whaling and the continued availability of a whale-based cuisine. In these regards then, Ayukawa is disadvantaged compared to Wada and Taiji which continue coastal whaling with pilot and Baird's beaked whales thus ensuring that the local cuisine can continue to attract and satisfy visitors' expectations.

Ayukawa also suffers from a relatively inhospitable climate; boats have a 20 percent probability of not being able to sail for Kinkasan island shrine in the summer, and the frequent cold and foggy summer weather requires alternative indoor amenities not available in so small a village. The existing whale museum requires considerable expenditure to make it visually and educationally attractive; at the present time its clientele consists principally of busloads of students on compulsory visits, as indicated by the almost constant month-by-month visitation records.

Following the failure of the local salmon-farming enterprises, the town government now has plans to construct some tanks to try and farm shellfish (abalone) and sea urchins. However, both these marine products are harvested locally in the wild state, so the economic viability of the enterprise remains to be demonstrated.

Taiji: The town of Taiji (population ca. 4,400) has produced an ambitious economic recovery plan based on three inter-related components, namely:

(1) A world-class cetacean and whaling-related research and educational facility;
(2) A continued small-scale local whale fishery;
(3) Tourism involving (1) and (2) above.

Taiji has made some progress in respect to the first of these goals. A national planning conference was held under the auspices of the Wakayama Institute for Social and Economic Development and funded by the National Institute for Research Advancement. A report on this planning conference has been published and a fund-raising program appears to be underway.

Taiji is well suited to tourism (see below, under Tourism Development) given its rail connections to major population centers (e.g. Osaka, Nagoya) and airports. It is also widely known in Japan as the birthplace and spiritual center of Japanese whaling.

Wada: This small town (population ca. 3,000) continues to be involved in catching and processing Baird's beaked whale to supply the traditional dietary preferences of the surrounding (Awa County) communities. However, because the town served as a landing port for a LTCW sperm whale fishery until 1987, the economic contribution of whaling to the town and the local fishing economy has seriously declined (IWC/41/21: 28, 31-32) requiring that new economic activities be introduced.

Wada is connected by road and then rail to large population centers in the Tokyo region and has a mild climate and good beaches nearby. Town officials are hoping to boost local tourist visits by developing amenities that at present to not exist. These developments will require positive assessment of their profitability by private developers. At this time confidential discussions between a developer and the town council are being held.

However, these potential developments are likely to meet local opposition, due to the damage marina development may inflict on a carefully controlled traditional fishery, and other potential effects of an influx of tourists that residents believe the environment would likely be seriously impacted by increased tourism.

These local concerns may be something of a disincentive for a developer aware of the current strength of local residents' opinions.

Abashiri; The local authorities, though concerned about the importance of continued production of whale meat because of its local dietary importance, recognize the limited employment and economic significance of STCW to the city (population ca. 43,000) as a whole, especially

as other local fisheries are also expecting problems at this time.

Due to the incapacity of the Abashiri-based fishery to expand, tourism is being promoted as a growth industry in Abashiri as in many other towns and cities in Japan. In the case of Abashiri, tourism is to be based on environmental assets; for example, on the forests, sea-scapes, especially the winter drift ice on the Sea of Okhotsk, and the rich cultural heritage of the region.

Whaling is included in this cultural heritage, with one section in the newly-built Museum of Northern Peoples likely to be developed to illustrate the history of Hokkaido whaling. The distinctive local diet, based on fresh minke whale meat is recognized as a significant element of the cultural heritage of Hokkaido coastal towns, and explains local concerns that coastal whaling resume operations.

National government initiatives

As in many countries of the world, industries large and small are constantly adjusting to changing demands for their product and consequent altered competitiveness in local, national and international market places. As a consequence of this reality, governments variously enact legislation to compensate, relocate, retrain or otherwise assist those affected by such industrial or vocational dislocations.

Coastal whalers in Japan are now subject to this same occupational problem, even though, unlike workers in many obsolete or non-competitive jobs, they worked in a well-regulated occupation uniquely satisfying a continuing consumer demand with a high-quality product at a reasonable price. Despite the consequent unusualness of their altered occupational circumstance (relative to other occupational groups), under the labor laws of Japan whalers receive the same consideration as any other laid-off workers, for to accord whalers special treatment would create inequities in the national system that would certainly be protested by the many steel-workers, fishermen, farm-workers, merchant mariners, ship builders or others whose jobs are also disappearing at this time.

This section of the report will discuss the national government's actions to mitigate the impacts of the zero-catch quota on three of the groups principally affected, namely, the whale-boat crew members, the boat-owners and the consumers.

Whalers: As detailed in last years report (IWC 41/21: 6-7; 9-13) whalers employed in Japanese STCW find themselves in a difficult situation once losing their employment: they tend to be occupationally specialized and lack formal qualifications, and they tend to be older (whalers average age 48; flensers 46 in 1990) and have few connections with others outside their communities who might assist in placing them in other employment. Few of the laid-off whalers have fared well in seeking new jobs. To summarize the current situation (see Table 2), of the 87 STCW workers employed on boats or at the shore stations at the time the zero-catch quota was imposed, 42 remain employed in whaling, (most at reduced levels of payment in cash and whalemeat). Among the 45 who have lost jobs in whaling, 13 have found full-time employment, 18 have part-time or seasonal work, and 10 remain unemployed. (The status of three former whalers is unknown.) The part-time and most of the full-time jobs (as watchmen (3), driver (1), sales clerk (1), etc.) lack security and are not well-paying, but are the best available to men of these ages lacking formal educational or occupational qualifications.

Unemployment benefits are paid for 12 months to those in full-time employment who lose their job; unfortunately STCW does not provide full-time employment, as the whaling season extends for only six months of each year. Thus even though whalers received wages for twelve months of each year (a wage plus bonuses and payment-in-kind during the whaling season, and a reduced 'retainer' for the rest of the year) government regulations define full-time employment as requiring continuous workplace employment on a twelve-month basis.

Thus those whalers losing jobs are only eligible for 3-6 months of payments under government regulations and given the limited re-employment prospects for men in their situation, their families' economic and social status has in almost every case deteriorated and at the present time shows no sign of improvement over that reported last year (*op. cit.*).

Boat owners: The principal economic assets of the eight STCW companies are the specialized whaling boats. In addition, three companies have a small landing station, and (in the case of Hokkaido) a cutting shed for shaping and boxing the meat. Receiving government compensation for their loss of business requires disposing of these assets. However in no case is this a realistic option, for in return for compensation the boat owner would be required to

Table 2: Employment status of small-type coastal whalers, fall 1989
(* includes part-time and seasonal jobs)

	Number employed in 1988	Still employed in STCW	Work on cargo boats, other fisheries	Various land jobs	Unemployed
Crew members (Average age 48 years)	65	27	15*	8*	9
Land workers (Average age 46 years)	22	15	1	5*	1

Source: Japan Small-type Whaling Association

formally close his business and consequently surrender his operators licence.

Six of the eight STCW operations are small family-businesses; the seventh is operated by a Fishery Cooperative and the eighth is managed by a local whaler for a STCW and salmon-farming company (Nihon Kinkai). However, each boat operator's identity is as a whaler, which remains an honored profession in these coastal communities. STCW operations (albeit on a reduced scale) continue, utilizing pilot and Baird's beaked whales, and there is awareness, based on local environmental knowledge that following this pause in whaling, stock assessments will likely indicate that a viable coastal whale fishery could once again be sustained. In such circumstances, surrendering a licence in order to receive financial compensation is an unsound social and economic proposition. It is important to remember that in the Japanese context, STCW operators have continuing social obligations to provide members of their communities and important community institutions with whale meat; hence to accept financial compensation at the cost of continuing to honor those long-standing social commitments is unthinkable.

Consumers: A principally important role served by STCW operations is the seasonal supply of fresh whale meat in that local region served through each of several designated landing ports. Some of this landed meat is processed in the community and other portions may be processed and/or subsequently marketed elsewhere in Japan where that particular whale product is favoured in the regional cuisine. However, the unfilled local demand for fresh whale meat, and the requirement for frozen meat for ceremonial or continuing everyday use outside of the whaling season in these whaling districts, constitute a serious problem that the government has attempted to overcome in three ways.

The first way was by increasing the quota for Baird's beaked whales from 40 animals (the quota from 1983 until 1987) to 60 in both 1988 and 1989. As each beaked whale yields significantly more meat than does a minke whale, this increased beaked whale yield has provided needed assistance to the STCW operators and crews and to some consumers. However the meat of beaked whale is unfamiliar to many consumers who also lack appropriate knowledge of how to prepare the meat (it being a local food in southern Chiba prefecture), so not all consumers benefit equally from this particular countermeasure.

A second way of overcoming the shortage of traditionally-used minke whale has been through a highly controlled national distribution of frozen minke meat and blubber taken as a by-product of the Japanese antarctic research program, and utilized as required by IWC regulations. This national distribution, to consumers in all 46 prefectures on the main Japanese islands was outlined in detail last year (IWC/41/21: 66-69).

However, this distribution cannot satisfy the requirement for fresh whale meat in the diet, though it ensures that whale meat remains available (though in limited supply) to consumers in many regions of Japan.

In Ayukawa the distribution of frozen minke (under the authority of the town office though utilizing the facilities of the fishery Cooperative) goes directly to each household, with a supply provided to the local hospital, the school and local shrine in order to maintain these institutions' ability to provide expected levels of food and ritual service. Town officials are determined that school children benefit from the superior nutritional value of whale meat as well as not lose a taste for the meat.

The third way in which the national government has attempted to reduce the negative impacts of the zero-catch quota is to authorize whaling on a separate stock of pilot whale to that fished in the Ayukawa area. Thus an authorized landing station opened in southern Japan (Kyushu) in 1989 and a quota of 50 pilot whales was allocated to this fishery.

TOURISM DEVELOPMENT

The specific plans for tourist development in the four whaling towns has been outlined earlier in this report. However, there is a particular context within which domestic tourism in Japan operates, and some of these background considerations should be considered when assessing the likelihood that tourism will succeed in supporting the socio-economic revival of towns that have been impacted by the significant reduction in whaling-derived local economic activity.

Successful tourist development in Japan is based upon concentration of meaningfully attractive and accessible amenities; often hot-spring resorts are a required component in association with significant scenic, historic and recreational opportunities. Having a suitable climate for enjoying the scenery and other amenities is an important consideration.

Tourist development in Japan is required to be undertaken by private business developers. The role of government is restricted to setting standards to be met, and thereby regulating the entrepreneurial activities of the private sector; government financial involvement is limited to providing defined infrastructure (e.g. grants to assist in constructing access roads to resort areas) or regulating the interest rate that banks can charge to private developers. Given that resort development is occurring all over Japan at the present time, it is clear that developers can choose widely where to invest, and secondly, they must be reasonably certain of making an acceptable financial return on their investment at minimal risk. Unfortunately, of the three whaling towns in need of tourist-related development, Ayukawa has the greatest need and yet is likely the least appealing for such developments. Ayukawa, as mentioned earlier, is difficult to access, it has no hot spring resort nearby, it has few

recreational amenities, only one sacred site (Kinkasan) nearby, and no important pre-modern historic associations. The climate is a decidedly negative feature, with the confluence of the warm northward-flowing Kuroshio Current and the cold southward-flowing Oyashio Current occurring a few miles offshore providing frequent fog, rain and chill-winds throughout the year.

Wada ranks better as a tourist area due to the many beaches, mild climate, some historic associations and its relative ease of access. However, there exists the problem of local opposition to tourist developments that are perceived, by the residents, as politically unacceptable.

Taiji has most of the amenities desired by tourists: there are nearby hot-springs, impressive coastal scenery, historic sites, reasonable accessability and a year-round attractive climate. At the present time a large newly-constructed resort facility stands largely empty for much of the year just outside the town. Town officials have plans to increase the tourist appeal of the town by whale and whaling-centered developments to add to the existing facilities (a museum, aquarium and cetacean/sea lion performances) which also capitalize on Taiji's reputation as a whaling town.

There are two considerations which some residents of the whaling towns emphasize: the first is that each town, to the extent that it plans to emphasize its connection with whaling is, in a sense, competing with the other towns. Private developers know this is the case and will be well aware of each town's relative merits (and demerits). Secondly, all seem to agree that whatever tourist developments do take place, there will be nothing of direct benefit to any whalers or former whalers unless active whaling is maintained. Many people see the successful future of tourism in these towns as being dependent in important ways (e.g. maintaining a distinctive whale-based local cuisine) upon continued whaling.

WHALE WATCHING

One component of tourism development that requires evaluation is the potential for whale watching, for the very location of these towns and the limited distance STCW boats can travel suggests the nearby presence of whales.

Whale watching has become established in several countries based on the inshore presence of suitable whale species, notably the large whales such as humpbacks, blue, fin, gray, and killer whales. In each case these large whale species are slow moving (ponderous in fact), spend some time at the surface, often allow close approach by boats, and predictably occur in the area feeding, mating or on migration in large numbers. Predictability (of occurrence) is important, for some whale-watching cruise operators offer a refund if no whales are sighted.

In the case of the whaling towns in Japan none of these favorable conditions for whale-watching appear to be met. No concentrations of large baleen whales occur in these minke, pilot or beaked whale areas, nor do even solitary animals of those other favoured species occur inshore within safe operational range of the STCW boats.

The whale species that do occur are quite unsuitable for whale watching and often require a trained eye to see at all. When seen, the minke whale is usually located by its 'spout' together with a small part of the mid-back section, after which it quickly dives if hearing the noise of an approaching motor, subsequently surfacing 2-3 miles distant after 10-20 minutes swimming under water. Due to the small size of the whales and the fleeting presentation when at the surface, minke can only be spotted (by professional spotters) within one nautical mile of the boat, and at that distance only when sea conditions are calm.

Baird's beaked whales on the other hand can be spotted up to six miles away and are much easier to see than are minke whales. However, beaked whales are very timid animals, and dive immediately the boat approaches, usually for 30-40 minutes, to reappear some miles from the boat, where the whales only remain on the surface for three or four minutes before taking another deep feeding dive. Any noise from the boat will cause the whales to disappear, so sensitive are they to noise. Baird's beaked whales off of Wada may be in small groups of 5-6 animals; the beaked whales in Hokkaido waters occur in smaller-sized groups (2-3 per group) and tend to remain on the surface for only half the time of the beaked whales in the Wada area, say one or two minutes between lengthy dives.

Pilot whale spouts can be sighted up to one mile distant on calm days and may be seen throughout the year off the pacific coast of Northeastern Honshu. The chances of encountering pilot whales are greatest in the fall months (September-November) when they approach to within five to ten miles off shore. At this season groups of pilot whales numbering around 20 may often be seen off Miyako or Kamaishi (about 100 and 80 miles north of Ayukawa respectively). However, the fall is a time of strong northeasterly winds and rough seas, and the distance from Ayukawa as well as the sea conditions are not conducive to whale watching in this region; when the wind causes waves, spotting distance decreases to 100-200 metres.

In the Taiji area pilot whales are seen during the spring (May-June) and fall (October-November). The actual presence of pilot whales however, is unpredictable due to year to year variation in the Japan current. Whereas pilot whales are not easily scared by boats in Northeastern Honshu waters, those in the Taiji area are easily scared and hard to approach.

CONCLUSION

A number of countermeasures have been introduced since the zero-catch quota for minke whales seriously undermined the social and economic sustainability of the small yet stable small-type coastal whaling operation in Japan's nearshore waters.

An assessment of the various measures taken to reduce the negative impacts of the minke whale zero-catch quota indicates:

(1) Salmon-farming has not proved economically successful and has not benefitted former STCW either in terms of lost income or jobs.
(2) Despite a continued fishery based upon small quotas of pilot and beaked whale, more than half the whalers engaged in STCW have lost their jobs as a result of the minke whale zero-catch quota imposed in 1988.
(3) Most positions obtained by whalers losing their jobs are seasonal or part-time, low paying and without security or benefits associated with satisfactory employment.
(4) Due to the limited (six-month) duration of the STCW season, laid-off whalers are ineligible for more than a few months of compensation under national regulations.
(5) Boat owners are not eligible for part-compensation for the lack of livelihood resulting from the minke zero-catch quota, due to the requirement that they surrender their capital equipment and business licenses if receiving government compensation. The ongoing commitments boat owners have to various institutions and individuals in their home communities renders this option socially and culturally, as well as in a business sense, quite unacceptable.
(6) The limited distribution of frozen antarctic minke meat as a by-product of the Japanese whale research program into the whaling towns provides much less meat than is required for a normalization of customary dietary requirements.
(7) Efforts to promote tourism in the economically-troubled whaling towns does not appear promising.[1]
(8) Whale watching as a proposed countermeasure appears to have little practical value; the species of whale and the type of boats available, the shortness of the season and the sea conditions are all quite unsuited for satisfactory whale watching.
(9) Whaling-operation watching, on the other hand, would likely assure these small communities a competitive position in the domestic tourism market notwithstanding their various disadvantages occasioned by their relative remoteness from established tour routes.

End note

1 This conclusion is in agreement with that made by Professor Nelson Graburn (of the University of California, Berkeley) an internationally recognized authority on Japanese tourism whose recently completed assessment of whale-based tourism in Japan is available as a supplementary document.

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APPENDIX

Executive Summary of Report to the Working Group on Socio-economic Implications of a Zero Catch Limit (IWC/41/21, edited to delete exclusively non-STCW impact statements)

Executive Summary

Small-type whaling continued to operate as a stable fishery until the 1988 season, when an IWC-imposed zero-catch limit for minke whale reduced the production of this coastal fishery by almost half.

The result of these restrictions on whaling has caused a number of direct and indirect impacts of a social, economic, cultural, and health-related nature which adversely affect whalers and their families, whale-related small businesses and other institutions in the whaling towns.

Small-type coastal whaling employed 75 full-time and 38 part-time seasonal workers in 1987, the last year of this stable fishery, before the zero-catch limit was imposed on the minke whale quota, at which time small-type whalers lost their jobs in the summer of 1988.

Some small-type whaling operations rehired some of their workers for the late summer/fall Baird's beaked and pilot whale fishery in 1988; however the 50 percent of workers rehired received salaries reduced by as much as 50 percent. In addition, the supplemental pay and bonuses, including shares of whale meat, were considerably reduced in 1988 for those whalers otherwise fortunate enough to be rehired.

Small-type coastal whalers in most cases are ineligible for government unemployment benefits, and due to the small-business nature of the small-type whaling operations, did not receive large dismissal allowances.

Those whalers not re-employed in the fashion described above, have sought employment in a variety of low-paying occupations, often in temporary, part-time or seasonal work. Some have left their home communities, with or without their families, moving to larger centers in the hope of finding better job prospects. All are having to rely on savings at the present time, which given their ages, involve the peak years of family expenses when their children are in or entering high schools or universities.

The average age of former whalers is the late forties, though a large proportion are in their fifties. Due to their

financial obligations, many wives of former whalers have had to take low paying, part-time jobs and work for long hours. This situation causes various profound interpersonal and emotional stress in these families, due to the sudden reversal of roles in a society having rigid traditional norms concerning gender-related household divisions of labor.

There are serious barriers to re-employment of former whalers, due to the highly-specialized nature of their work, their lack of networks outside of the whaling profession, the over-capacity of Japanese fishing and merchant marine industries, and the particularities of Japanese employment and fishery practices.

A number of stress-related health problems are reported among former whalers who are unable to find suitable employment. Some occupational-health problems are also reported among the middle-aged former whalers now undertaking unfamiliar and physically-demanding new jobs.

The emotional stress caused in families of unemployed whalers affects husband-wife and parent-child relationships. Children worry about their parents' changed financial circumstances at a crucial time in their schooling when their attention and concern need to be fully directed to the all-important high-school and university entrance examinations.

Officials in some whaling communities report the recent appearance of hitherto unknown anti-social trends among some young people and in families of unemployed whalers. Whaling towns historically have been entirely free of such tendencies due to the high status and prestige enjoyed by whalers in Japanese society and history.

Whale meat remains the favorite food of all age groups in the whaling towns and districts; it is both a preferred everyday food, and a required ingredient in special dishes served on various religious or ceremonial occasions.

Whale meat is especially important in gift-exchange ceremonies which have an important place in the social life of whaling towns. The interruption in supplies of whale meat has seriously compromised these ceremonial occasions with a corresponding loss of community solidarity at a time when massive economic dislocations caused by the whaling ban seriously threatens the continued viability of these small remote communities.

Economic problems in the whaling towns are caused by job and wage losses to whalers, flensers, meat processors and distributors, retailers and the various businesses depending upon the local circulation of revenues generated from whale-related occupations.

Whale-meat processors are affected by the shortage in supplies of whale meat, the non-availability of certain products with cessation of large-type whaling and the increasing price of other whale products as the supply diminishes. This has resulted in loss of employment in meat-processing firms, reduced wages to employees, large and risky financial investment in new equipment in attempts to diversify, and uncertainty in regard to future business success.

The meat processors in some locations have for generations processed locally valued specialty products. The interruption in supplies now threatens the continued existence of these multi-generational small family businesses and the small-scale distributors (peddlars) who have supplied rural populations with the traditional staple whale-meat products at low cost.

These local specialty foods are also important for tourism development in these remote towns which must compete for tourism revenues with towns better endowed with tourist facilities and attractions.

Losses of cash income and free supplies of whale meat distributed locally affect the income of these boarding establishments and their ability to provide the whale-meat dishes tourists expect to enjoy when visiting these traditional whaling communities. Tourists report concern should the whale-meat cuisine not be obtainable on their future visits.

The various business enterprises affected by the interruption in whale-meat supplies are for the most part small family businesses; in one whaling town for example, three-quarters of the 175 businesses employed two or less employees, and less than three percent of businesses employed more than five employees.

The tradition of family businesses in Japan places a strong moral value on ensuring the business, inherited from ancestors, is nurtured and passed on in sound health to succeeding generations. This is true for whalers, flensers, food processors, retailers of traditional products or others who inherit family businesses. The present threat to the continuation of such family occupations is a cause for intense anxiety, shame and a sense of moral failure on the part of family-business owners whose businesses are failing due to the economic consequences of the whaling moratorium.

In the whaling towns, whale production accounts for a significant proportion of the revenues of the local Fisheries Cooperative Associations (FCA) to which belong the several hundred local fishermen as well as whale-boat operators. The FCA operates the local fish market, provides ice and freezer storage for fishermen, and serves as the principal financial institution for its members.

With regard to health impacts, whale meat is generally considered a superior source of animal protein than is agriculturally produced meat. Because whale meat was largely available free (as gift items) in the whaling towns, the interruption in supplies now causes people to purchase substitute meats. Due to the financial problems in these towns the inexpensive, fatty, meats are increasingly being purchased, with causes concern to health officials as obesity, high blood pressure and elevated cholesterol levels begin to appear among elderly residents.

DISTINGUISHING BETWEEN JAPANESE STCW AND LTCW IN RELATION TO COASTAL WHALE-FISHERY MANAGEMENT

The Government of Japan
1990

CONTENTS

INTRODUCTION

As described in earlier reports (e.g. IWC40/23; TC41/STW1; TC41/STW3) one may consider the distinct forms of Japanese whaling existing during feudal and modern times as constituting a distinctive 'whaling-complex' because despite their differences, these various forms of Japanese whaling are historically related, have many features in common, and in each case, as well as collectively, they are significantly different in practice and consequent organization from whaling practiced in other countries. As the distinctive features of Japanese whaling have been detailed in earlier reports (*op . cit.*; also Takahashi et al. 1989; Kalland and Moeran 1990) this present report will focus exclusively upon only those questions raised at the last meeting of the Working Group to Consider the Situation of Various Kinds of Small-type Whaling, namely the differences that exist between STCW and LTCW. No attention will be given the significantly larger pelagic whaling enterprise, though this form of whaling can be considered an elaborated form of large-type whaling carried out from floating rather than land-based processing stations.

Lastly, this report, after describing the differences between STCW and LTCW as requested last year, will propose an appropriate management plan for STCW which will ensure that the conduct of this small-scale fishery, for definitional and operational purposes, remains quite distinct from the large-scale operations which were formerly carried out by (now disbanded) LTCW companies.

THE IMPORTANCE OF CASH IN HISTORICAL AND CULTURAL PERSPECTIVE

Past discussions concerning the commercial aspects of Japanese STCW have looked at the issue in a particularly 'western' (ie. non-Japanese) manner. However, as the purpose of these research reports is to create a more complete understanding of the role of small-scale whaling in Japanese maritime communities, it has been necessary to describe various social, cultural, historical, dietary and religious traditions and practices that are quite different from the every day experience of most non-Japanese. The same distinctiveness found in many areas of Japanese social and cultural life applies also to many areas of Japanese economic life.

It is worth emphasizing here that whaling in Japan is distinctive in many respects compared to whaling in other societies, and that the basis of these differences in the Japanese case has deep historical roots. Since its earliest net-whaling beginnings, Japanese whaling enterprises constituted important commercial and economic institutions, indeed in feudal times whaling groups formed the largest industrial enterprises in Japan.

In Japanese whaling, the use of cash has long been important traditionally as a way of creating social acceptance or solidarity between the various parties needed to co-operate to ensure a successful whaling enterprise. To establish net-whaling enterprises at favorable coastal locations in the early 1600s required cash payments to the feudal authorities, compensation (*ura-gane*) paid to the local fishing villages for the inconvenience caused by whaling, lump-sum tax payments (*unjo-kin*) for each whale landed, and ground-rent (*tatami-gane*) for look-out posts and other shore facilities. The advance wages paid to skilled shore station workers and whalers (often on yearly contracts) served as a means of ensuring their loyalty to the whaling enterprise, serving as a symbolic as well as economic means of cementing the social and occupational obligations that exist in Japan between employer and employee.

In many rural societies in Japan as elsewhere, 'outsiders' often experience great difficulty in gaining

acceptance into their new community. In Japanese coastal villages, where the community controls access to marine resources, this difficulty of gaining access to shore locations was particularly problematic for whaling companies for example, wishing to move their operations to new whaling locations. Thus the payment of lump-sum cash payments, both as compensation and also to demonstrate commitment and goodwill has, since earliest times, been the culturally appropriate means of facilitating the required degree of social acceptance needed to gain entry to these local societies.

This traditional use of cash in social, as well as purely economic, transactions continues today with whalers sponsoring various community-wide events. Also, for example, in order to build a new flensing station in southern Japan, the whalers must pay annual compensation (¥1M is being considered) to the local fishery cooperative, and a levy of 4.3 percent of the value of each whale landed. It would be quite wrong to evaluate these transactions as accomplishing merely economic or commercial goals, even though there are obvious financial benefits derived from the practice. In these former and current whaling districts, demonstrating conformity with historically sanctioned whaling practice remains important. In social terms too these financial arrangements facilitate necessary social intercourse between individual insiders (villagers) and outsiders (whalers from other communities) through culturally appropriate ways and means.

Thus it can be seen that the economic practices sustaining and being sustained by Japanese STCW exactly mirror the practices having taken place for almost four centuries and maintained since that time. The point has been made consistently that the small-type coastal whale fisheries in Japan serve important local needs. These needs relate to the maintenance of community institutions, including, e.g. small family-businesses, local religious and ritual celebrations, local fishery cooperatives (which fulfil a variety of financial, social and occupational support functions in these fishing communities) and a distinctive local food culture, all of which remain basic to local identity and community wellbeing. Though Japan is making a serious attempt to quantify the amount of whale meat entering into different uses through cash or non-cash transactions it seems quite likely that differing interpretations of these survey results will continue to provide problems in seeking a just and reasonable solution to the STCW problem.

For example, how can we state with any certainty, that a gift of whale meat obtained through non-commercial means, will not result in a financial benefit to the gift-giver, if the gift receiver is, for example, a business associate? Nor can quantitative surveys impute a measure (agreeable to all) for 'cultural value' placed on the purchase or use of whale meant. How are we to know whether a small quantity of whale meat used in a religious or ritual ceremony has less (or more) cultural value than much larger amounts consumed in a family meal or dining out with friends at a restaurant? Those answers cannot be obtained, and were they to be attempted their interpretation would likely be endlessly disputed. We believe that a more reasonable approach was put forward by several participants in last years discussion on STCW, where it was pointed out that (1) even barter is commerce, (2) in any economy with high value placed on sharing and gifting, one cannot clearly distinguish between commercial and non-commercial transactions because of the importance accorded *the use* to which a product is subsequently put, and (3) that using cash is to some people seen as somehow wrong, but carrying out the same economic transaction without cash is somehow acceptable. The unresolved inconsistencies, despite long debate, suggest we embarked on an unhelpful approach to resolving the practical problems facing those affected by the STCW zero-catch quota.

MAKING THE DISCUSSION MORE PRACTICAL

On the other hand the discussion last year did propose following one approach which has clear relevance to fishery management, namely the questions of *scale*. By this approach we are able to examine quantifiable and other unambiguous differences between various forms of whaling and decide, in relation to regulating the fishery and hence controlling exploitation of the resource, what are the practical and acceptable criteria to examine. From last years discussion, it became apparent that many were concerned not to extend further the largely philosophical or theoretical nature of the discussion, and urged a more pragmatic orientation in dealing with the STCW issue. The suggested way of moving the discussion forward last year was to consider the question of *scale* in different types of coastal and commercial whale fisheries. It appeared to be recognized that large-scale fisheries probably constitute a different management challenge than do small-scale fisheries, and that the impact on the stock will potentially be different in each case. It was also recognized that when discussing different forms of whaling there will be shared or overlapping characteristics; indeed, that is so for many classifications that we nevertheless find useful. The pragmatic clustering of *significant* distinctive criteria in order to reach a practical, rather than philosophical, goal is what we are attempting here. All recognize that in practice fishery regulations are always subject to revision as changing circumstances dictate. IWC practice is no different in this regard, with periodic changes made to the Schedule to accommodate a variety of changing practical circumstances.

NATURE AND SCALE OF WHALING OPERATIONS

Some principal differences between STCW and LTCW in Japan relate to aspects of organization and scale,

TABLE 1: STCW Company Full-time Employee Numbers

Company	1986		1987	
	Boat	Land	Boat	Land
A	8	0	7	1
B	8	3	8	1
C	7	3	7	1
D	7	2	7	1
E	8	6	8	1
F	14	8	14	8
G	5	1	5	1
H	8	3	8	1

Source: Japan Small-type Whaling Association

reflected in the economic, technologic, labor and management requirements in these two forms of whaling operation.

Ownership and management

The eight STCW companies are small, mostly family-owned, businesses employing few workers (Table 1). Frequently, wives, brothers, sons and their spouses work for the company, either on a more or less full-time or a seasonal basis, and the small workforce (averaging 10 workers per company, range 6-22 workers) is permanently resident in a whaling community, more often in that of the boat-owner.

On the other hand LTCW companies are whaling divisions of large diversified fishery corporations (see Table 3). As national corporations they are not family-run and management decisions are made by boards of directors elected by share-holders representing a diverse range of financial interests. These companies are not headquartered in whaling communities and their workers (especially the boat crew) are recruited from any number of often distant communities (see Table 2).

In the years 1986 and 1987, two LTCW companies, Nihon Hogei and Nitto Hogei, though reduced in size from a few years earlier, nevertheless still employed in their whaling operations over 200 full-time and more than 50 part-time workers in total. Though whalers and flensers working in STCW may have been born in other places, most reside permanently with their families in the STCW boat-owners community.

Scale of assets

Scale of capitalization of STCW and LTCW companies are significantly different. In the case of STCW, seven of the eight companies each operates one boat, the eighth company operates two boats. Two STCW companies operate a total of three flensing stations, each consisting of a single shed-like structure. The two Hokkaido-based STCW companies have small buildings for shaping and boxing the meat that is flensed at sea, and one flensing station for beaked whale. Six of the eight STCW companies are owner operated; in addition to whaling, two of the owners have invested in local fishing (salmon farming and set-net partnerships) and one other owns a local private hotel. A seventh STCW is operated (in Ayukawa) as a wholely owned subsidiary of a former LTCW company, with all management decisions made by the Ayukawa boat operator. This STCW company is also engaged in salmon farming. The eighth STCW operation is managed by the Taiji Fishery Cooperative Association, that runs a range of local services normal for these community organizations (IWC/41/21: 31-32). All these STCW company activities occur in whaling villages where the companies are located.

TABLE 2: Place of residence of Nihon Hogei LTCW workers in Ayukawa at time of their dismissals, 1987

Prefecture	Town/City		Worked on Catcher boat	Worked at Flensing station
Miyagi	Oshika	Ayukawa	5	13
		Kugunari		3
		Tomari	1	
		Unknown (hamlet)		1
	Ishinomaki City		7	4
	Onagawa Town		1	
	Ogatsu		1	
	Yamoto		6	2
	Kogota		1	
	Naruse		1	
	Shiogama City			1
	Sendai City		1	
Aomori	Hachinohe City		1	
	Oma		2	
Kanagawa	Yokosuka City		1	
Fukui	Fukui City		1	
Wakayama	Taiji Town		13	
	Katsuura Town			1
Yamaguchi	Shimonoseki City		1	
	Ube City		1	
Fukuoka	Fukuoka City		1	
Nagasaki	Arikawa Town		1	
	Sasebo City		1	
TOTAL:			44	28

Source: From Kalland and Moeran 1990, reproduced with permission

In contrast the LTCW companies operate nationally and overseas with corporate headquarters in Tokyo. Table 3 lists the range of diversified fishery-related activities they engaged in.

The two LTCW companies each owned two catcher boats in the last few years of operation (Nihon Hogei operated four catcher boats until 1982; Nitto Hogei, three until 1983). They also operated six land stations at Ayukawa, Hamada (Osawa), Kiritappu, Ogasawara (Bonin

Islands), Taiji and Wada. The shore stations were comprised of several enclosed buildings, offices, processing, freezing and storage facilities, and dormitories and food halls in some cases.

We are evidently contrasting businesses having quite different scales of commercial operation, and these differences in turn are based upon different whaling and management practices.

The size of the catcher boats in the two forms of whaling reflect some fundamental differences between STCW and LTCW that have clear implications for stock management. For example, STCW boats with a fuel capacity of 15-20 vl and speed of 9 miles per hour have limited range of operations and generally return to port each night. LTCW catcher boats however, are ocean-going vessels with a fuel capacity 300-350 vl, a speed of 16 miles per hour and are capable of remaining at sea up to 35 days (see below, Duration of Whaling Voyages).

The small size (15-48 gross tons) of the STCW boats incurs relatively low capital, operating and maintenance costs compared to the LTCW coats (600-750 tons); thus landed product required to finance the whaling operation can be much more modest in the case of STCW. Between 1982-87 each STCW boat produced an average 106 tons of edible product (range 90-130 tons) per year, whereas in one LTCW company each boat produced 1,489 tons of meat and blubber annually (over the five-year period 1983-87) in order to meet the much higher costs of payroll, headquarter's, vessels' and landing stations' operating, maintenance and depreciation costs, and stockholders' dividends (see Table 4).

Recruitment practices and career paths

The level of skill required as a LTCW catcher boat crewman, from captain, through engineer, electronic-equipment officer and bosun, is considerably greater given the nature of the vessel and its extended sea-going capability. Such crew members are required to hold national higher licences and many of them are college graduates. Such individuals will be recruited all over Japan by advertisement or through placement from their colleges.

STCW-boat crewmen are usually far less formally qualified. The inshore nature of their work and nightly return to base does not require the knowledge to service the equipment at sea, so that less formal qualification is required for most crew positions (the exception being captains). If any formal qualifications are needed, lower licences, not requiring high school or college graduation, will be sufficient. These men are recruited locally through family connections to the boat owners or other crew members.

TABLE 3: Diversified Commercial Activities of Two LTCW Companies

	Nihon Hogei	Nitto Hogei
Headquarters	Tokyo	Tokyo
Business activities	Long-line gill net fishery (N. Pacific) Long distance trawl fishery Squid drift-net fishery Coho salmon cultivation Tuna cultivation Fish processing and sales Seasoning manufacturing and sales Shark liver oil processing and sales Fertilizer sales Fish oil sales Fishery joint-ventures in Chili, Indonesia, Morocco, Peru and U.S.	Frozen food processing and sales Fish oil processing and sales Fish meal processing and sales Medicine manufacturing

TABLE 4: Annual production for one two-boat LTCW company, 1983-87

		Katsumaru 15	Katsumaru 18	Total Whales	Production (tons)
1983	Bryde's	116	124	240	1,879.38
	Sperm	92	106	198	1,763.33
1984	Bryde's	100	115	215	1,723.52
	Sperm	92	109	202	1,901.50
1985	Bryde's	60	79	139	1,119.10
	Sperm	85	115	200	1,882.74
1986	Bryde's	65	85	150	1,208.646
	Sperm	42	58	100	1,208.151
1987	Bryde's	64	75	139	1,139.35
	Sperm	48	53	101	1,060.60
TOTAL:					14,886.33
Average per boat per year:					1,488.63 tons

Source: Nihon Hogei records

The career paths of individual whalers may move them from STCW to LTCW, thus serving as an integrating force in the Japanese whaling culture complex. As working for large whaling companies was usually more prestigious and financially rewarding than remaining in STCW operations, many good whalers, particularly harpooners, were recruited by the large whaling companies after gaining experience and reputation in STCW. However for most jobs on LTCW catcher boats, STCW crew lacked the required formal qualifications. Partly as a consequence of the higher levels of training and the size of the crews on STCW and LTCW boats, there is a marked lack of status differential among STCW crew members compared to the more rigid and hierarchical status differentials observed by LTCW crew members.

The career paths among flensers tended to remain separate in STCW and LTCW, for in the former most flensing is carried out by women or elderly retired whalers working on an occasional non-wage basis. With such a small number of whales being landed, the STCW operators cannot afford to hire more than one or two skilled flensers (see TABLE 1) but because of the local need for high-quality fresh whale meat, immediate treatment of the carcass requires being able to rely upon many part-time flensers living close to the flensing shed.

In LTCW however, large whales are regularly being processed throughout the season, and it is more efficient to have a full-time skilled workforce standing by. Some seasonal flensers may be employed for wages; these may be recruited from agricultural areas in the non-farming season as well as locally, whereas part-time STCW flensers are always local and may receive no wages, but rather, fresh whale meat as payment.

Distance to offshore whaling grounds

The limited speed, fuel capacity and robustness of the STCW boats, compared to the LTCW catcher boats, is reflected in their harvest records.

FIGURE 1 clearly indicates the difference in mean distances of the 2701 whales taken in the STCW fishery during the eight years 1980-87, and the distances for 801 whales taken in the LTCW fishery operating from the three ports Ayukawa, Taiji and Wada during the same time period. (The LTCW fishery for Bryde's whales off the Bonin Islands is excluded from this analysis, as this is an oceanic rather than coastal fishery).

In FIGURE 2 the mean distance for STCW minke catches is seen to be about 20 nautical miles offshore and in the case of LTCW sperm whales, the mean distance is 98 nautical miles. TABLE 5 (overleaf) indicates that about 99 percent of all STCW catches are taken within 50 nautical miles of the coast. In LTCW, only 30 percent of whales are taken within 50 nautical miles, whereas about two-thirds of whales are taken at distances entirely beyond the effective hunting range of STCW boats.

Whales taken per voyage

In the case of STCW it is more usual to capture only one whale per hunting trip (except in the case of pilot whale

FIGURE 1: Mean Distance Offshore of Whale Catches, Japanese STCW and LTCW, 1980-87

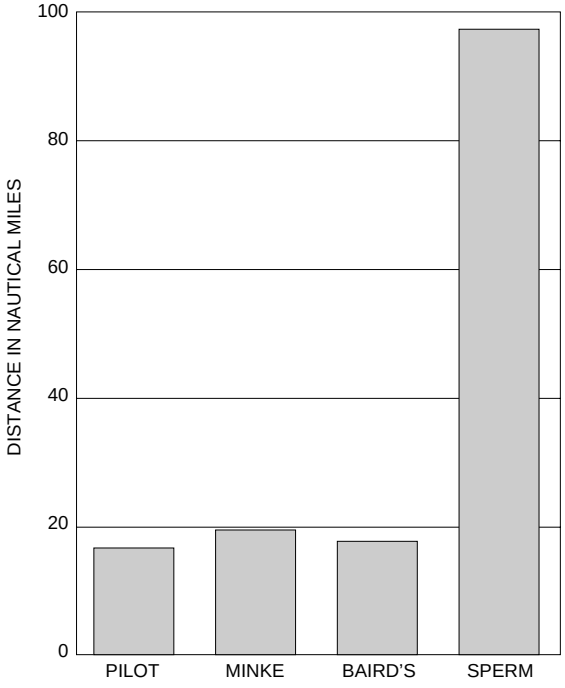


FIGURE 2: Mean distances of minke catches by year, Japanese STCW

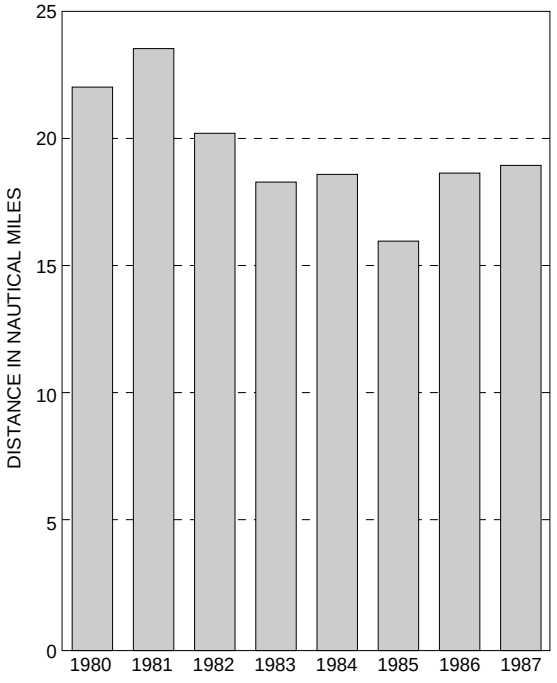


TABLE 5: Distances offshore of whale catches in Japanese STCW and LTCW, 1980-87

STCW CATCHES

Distance (NM*)	Frequency	Percent	Cumulative Percent
0-10	657	24.4	24.4
11-20	953	35.4	59.8
21-30	694	25.8	85.6
31-40	260	9.7	95.2
41-50	95	3.5	98.7
51-60	30	1.1	99.9
over 60	4	0.1	100.0

LTCW CATCHES

Distance (NM*)	Frequency	Percent	Cumulative Percent
0-10	3	0.4	0.4
11-20	36	4.5	4.9
21-30	67	8.4	13.2
31-40	75	9.4	22.6
41-50	57	7.1	29.7
51-60	63	7.9	37.6
61-70	50	6.2	43.8
71-80	37	4.6	48.4
81-90	53	6.6	55.1
91-100	37	4.6	59.7
101-110	40	5.0	64.7
111-120	26	3.2	67.9
121-130	31	3.9	71.8
131-140	34	4.2	76.0
141-150	20	2.5	78.5
151-200	68	8.5	87.0
201-250	96	12.0	99.0
250-300	8	1.0	100.0

*NM = Nautical miles

FIGURE 3: Mean hours at sea, Japanese STCW 1980-87

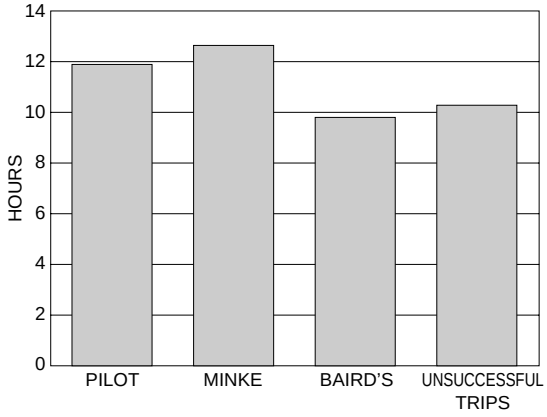
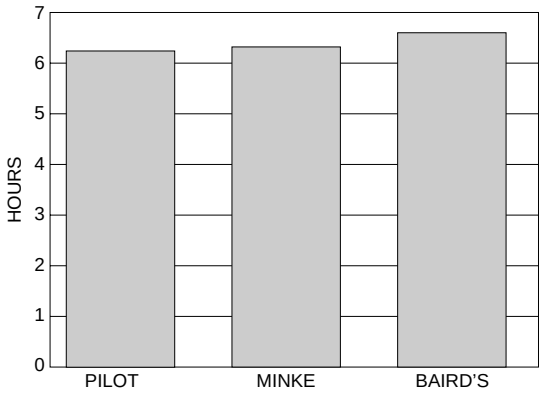


FIGURE 4: Mean hours at sea until catch, Japanese STCW 1980-87



hunting). However, in the case of LTCW, because the catcher boats hunt a considerable distance offshore, in more than 90 percent of the hunts more than one whale is taken per voyage (Table 6).

Duration of whaling voyage

The requirement of STCW boats to return to port each night is due to the need for good daylight to sight and hunt whales, as well as the limited operational range of the boats. FIGURE 3 indicates that the mean hours at sea for STCW boats varied between about 10 and 13 hours depending on whale species hunted, and FIGURE 4 indicates that on average the time taken to catch a whale was about 6 1/2 hours. As can be seen from FIGURE 5 about one-third of all voyages for minke whale were successful, whereas for

FIGURE 6: Sex ratio of whales caught in Japanese STCW and LTCW, 1980-87

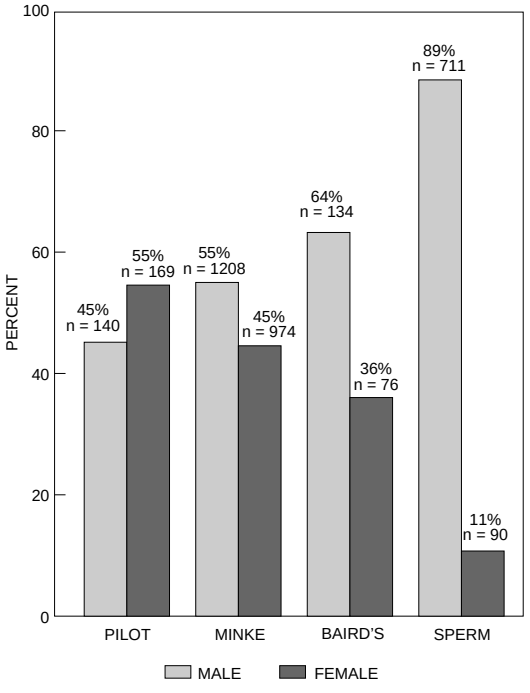
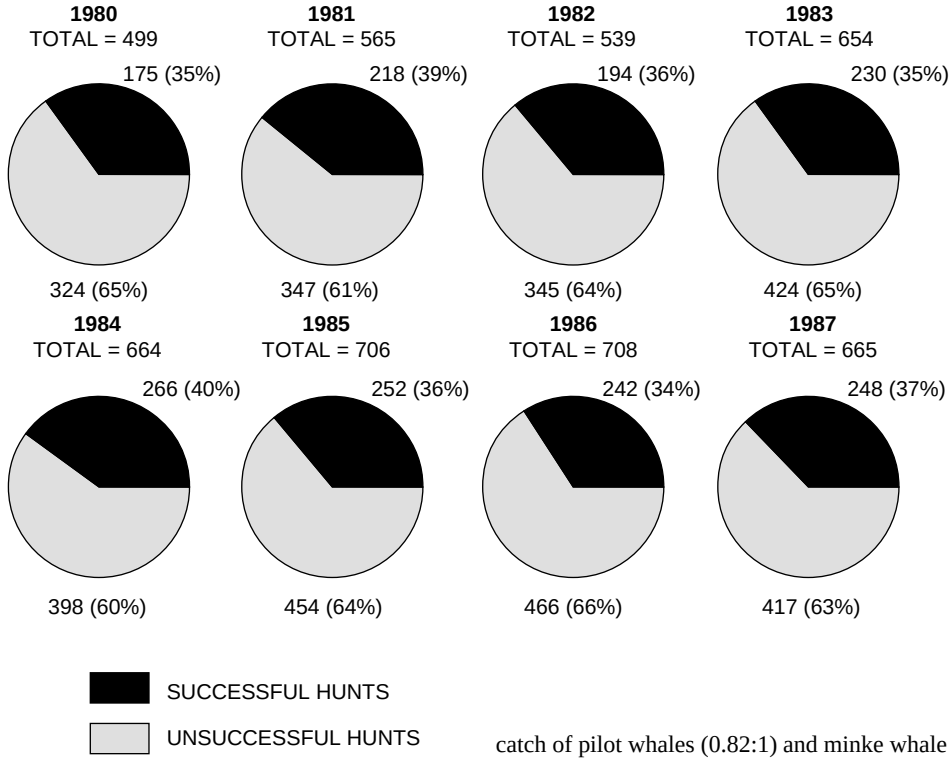


FIGURE 5: Proportion of successful minke whale hunts, Japanese STCW, 1980-87



beaked whales and pilot whales the success rate is annually more variable (TABLE 7).

Selectivity in whale harvesting

There is no apparent selectivity in the STCW fishery according to sex; whalers maintain that it is not possible to distinguish between males and females (unless a calf accompanies an adult female) and there is no marked size difference or spatial segregation according to sex. As can be seen in FIGURE 6, the male to female sex ratio in the catch of pilot whales (0.82:1) and minke whale (1.22:1) is closed to equal, whereas in the case of Baird's beaked whales it appears in favour of males (1.78:1). However, in LTCW the selective hunting of male sperm whales (65:1) is a consequence of an IWC instruction in effect since the 1980 whaling season to limit the catching of female sperm whales.

Therefore we have opportunistic hunting likely resulting in little disruption in the sex ratio of STCW whale stock, compared to management-directed selective hunting of males in the case of the sperm whale fishery which likely has affected the stock population composition.

TABLE 6: Number of whales taken STCW voyage, 1980-87

SPECIES	1 WHALE Freq.	(%)	2 WHALES Freq.	(%)	3 WHALES Freq.	(%)	4 WHALES Freq.	(%)	5 WHALES Freq.	(%)	TOTAL	
Minke	1,486	68%	286	26%	36	5%	4	1%	--	--	2,182	100%
Pilot	39	12%	35	23%	29	28%	13	17%	10	19%	309	100%
Baird's	202	96%	4	4%	--	--	--	--	--	--	210	100%
Sperm	63	8%	83	21%	60	22%	29	15%	49	34%	801	100%

TABLE 7: Proportion of successful hunts, Japanese STCW, 1980-87

SPECIES		1980		1981		1982		1983		1984		1985		1986		1987	
		S	U	S	U	S	U	S	U	S	U	S	U	S	U	S	U
Minke	N	175	324	218	347	194	345	230	424	266	398	252	454	242	466	248	417
	%	35	65	39	61	36	64	35	65	40	60	36	64	34	66	37	63
Baird's	N	--	--	--	--	18	10	37	53	34	57	36	15	35	18	34	30
	%	--	--	--	--	64	36	41	59	37	63	71	29	66	34	53	47
Pilot	N	--	--	--	--	21	40	43	48	44	37	26	50	--	--	--	--
	%	--	--	--	--	34	66	47	53	54	46	34	66	--	--	--	--

S = Successful hunt, U = Unsuccessful hunt

DIFFERENCES IN NON-COMMERCIAL DISTRIBUTIONS OF WHALEMEAT

The social importance of gift giving and gift exchange is well-known in Japanese society. However, what distinguishes the gifting of whale meat is the high symbolic and ceremonial importance accorded to the use of whale meat as the medium of exchange, illustrated particularly in the elaborate ritual associated with the catching and wide-spread sharing of the season's first-caught whale (*hatsuryo*). This has been described in detail in an earlier report (IWC/40/23: 43-51) but here we wish to emphasize the highly distinctive and extensive ritual involvement of community members in gifting associated with the first catch. In this ritual, bottles of sake (rice wine) are given to the whalers and the whaling boat, and whale meat is received in return. Sake, when used in ritual or religious ceremonies, is first offered to the gods before being drunk by those celebrating the ritual at the shrines and other sacred places, and in this ritual/religious context it is considered sacred and is known by the special term *omiki*. The use of the term *omiki* for the gift of drink used to initiate the ritual exchange involving whale meat indicates the high symbolic and ceremonial importance associated with the first-gift distribution of whale meat in whaling villages (see also Kalland and Moeran 1990 for further discussion of this matter).

What is significant in considering gifting of whale, is not the quantity of meat that is exchanged, but rather the community-wide extent of the exchange from the boat-owners, crew and boat allocations out to relatives, neighbors, friends, business associates such that "at the beginning of every whaling season, communities such as Ayukawa were involved in one vast cycle of gift exchange that appears to have rivalled even the famous *Kula* ring discovered among the Trobriand Islands" (quoted from Kalland and Moeran 1990). Though the first catch is the most highly ritualized, extensive gifting, from boat-owner, crew and vessel out to the community takes place every time a whale is landed in STCW. This contrasts with the situation in LTCW where a whale meat gift distribution is made to certain people only, ordinarily the owner of the flensing station and to householders adjacent to the station (to compensate for the inconvenience). There may be periodic, usually monthly, distributions from the company to the boat crew and flensers who in turn may distribute to relatives, friends and neighbors as opposed to the frequent and obligatory STCW distributions which occur each time a whale is landed, perhaps several times each week.

CO-OPERATION AND SHARING

In the case of LTCW, catching whales is a highly competitive business. Boats are equipped with electronic whale-locating equipment, and consequently very little advantage results from two whale catcher boats sailing together or co-operating on the hunt. The electronic equipment allows a whale to be followed during the hours of darkness and then taken when daylight returns.

The STCW boats can only hunt during the hours of good light and have limited operational range and speed. Whales are sighted visually from the mast-head using binoculars, and given the limited speed of a STCW boat, whales sighted beyond a reasonable distance can easily escape (see FIGURE 5). These factors make full co-operation between pairs (sometimes a larger number) of STCW boats very desirable. In view of this common practice, formal rules govern the capture of whales when more than one boat is involved in the search, and for sharing the carcass after a co-operative hunt has been concluded.

In the STCW situation, a boat sighting a whale will radio its intention of taking that whale to save other boats from pursuing the same animal. However, if it seems likely the boat sighting the whale cannot successfully capture it (the boat may not have the speed to approach within harpoon range) the sighting boat will request assistance from other nearby STCW boats. The auxillary speed boat may be used to turn the whale, but wind and sea conditions can prevent its use.

Agreements may exist between particular STCW boat-owners concerning provision of assistance when hunting; in such cases the understanding is that any harvested whale(s) will be equally shared. If no such prior co-operative agreement exists, and one boat can call on one of several STCW boats operating nearby, the choice may be made on the basis of which of the boats has the best hunting record under the prevailing conditions, or alternatively, to repay an obligation to a boat that earlier extended an invitation to assist in its own hunting.

Experience has shown STCW operators that co-operation is the best operational strategy in terms of economic and hunting efficiency. The sighting of a minke whale indicates to other boats that there is high probability that other minkes are in the area, so a tendency exists (given the inherent problem of spotting minke whales) for STCW boat operators to want to hunt near to other STCW boats at each whaling ground.

The high degree of co-operation in STCW facilites the equitable annual allocation of the quota among the eight STCW boat-operators. With the imposition of the zero-catch limit on minke, the allocation of the pilot whale and Baird's beaked whale harvest, and the formation of temporary partnerships and other operational considerations have been resolved equitably by consensus as in the past when less difficult decisions required to be made.

In 1987, the last year of the regular minke quota, the STCW boat owners voluntarily agreed to institute a zero-catch quota on pilot whales, so that the following year the carry-over from the unused quota could partially reduce the serious impacts anticipated by the minke zero-catch quota.

It is not unknown for STCW boat owners to either

voluntarily restrict hunting in consideration of fellow boat owners (see IWC41/21: 8) or allow other STCW boats to harvest part of the quota they had earlier been allocated (e.g. IWC40/23: 25). Such practices stand in marked contrast to the highly competitive behavior of LTCW boat captains, where, e.g. it is not uncommon to hear accounts of faster catcher boats taking a whale already being pursued by another, slower catcher boat, or of two LTCW catchers firing their harpoons simultaneously into the same whale in an effort to claim the carcass.

DISTRIBUTION OF MEAT FROM THE LANDING STATIONS

In connection with a discussion of scale in the two forms of whale fishery, a significant difference occurs in the commercial distribution channels utilized by these two fisheries.

The STCW fishery has been directed to meeting the consumption needs for fresh whale meat in the local communities that can reasonably be served by that restricted scale of operation. Minke meat spoils quickly and so would reach discerning consumers in an unacceptable condition unless the carcass is quickly flensed after capture of the whale. This requires that the whale be towed quickly to the flensing station, as 20 hours after killing the meat begins to spoil unless thoroughly chilled.

LTCW however, produces large quantities of meat from each boat voyage, far greater than the small local community could consume. The LTCW landing stations usually had the capacity to freeze, salt, can, or otherwise process the meat for eventual sale elsewhere. Apart from the lack of local capacity to consume the large quantities of meat produced from LTCW operations, in communities such as Ayukawa, Taiji and Wada, where until recently LTCW and STCW both operated, the local food culture was based predominantly on whale meat produced from the STCW fresh-meat fishery.

The use of some LTCW product in the mixed LTCW/STCW communities occurred for various reasons. For example, the low price of the product: sperm whale meat for example was ordinarily processed and sold elsewhere; however, if bought as a small quantity of fresh or frozen meat for family use at the flensing station, it was very cheap. Other reasons for its local use were its availability as fresh meat outside of the restricted STCW season, its receipt as a gift from a community member associated with LTCW, and in earlier times (when the supply was more abundant), its being given by the companies to local residents on a more regular basis than in recent years when supply was reduced.

However, the main contrast occurs in the manner commercial distribution was controlled. The LTCW companies were involved in capture, processing, distribution and wholesaling of the whale product; they controlled each phase of the operation and so the role of local or distant-market middlemen was largely excluded. Decisions as to where and when to market the product to maximize the economic return were made from a corporate headquarters watching the daily price fluctuations at large city wholesale markets in Tokyo, Kyoto, Osaka, Fukuoka, Nagasaki or elsewhere. The product, being frozen or processed, could be held back from markets to be released when prices were higher.

On the other hand, the STCW companies only produced the carcass, and in some cases undertook to also flense the whales. The STCW companies do not undertake commercial processing, distribution or wholesaling; this is carried out by local processors or distributors, having their own customers (e.g., retail stores, hotels, inn keepers, etc.). The relatively small quantity of product available on any given day was not attractive to distant buyers wishing to serve the large metropolitan markets, as the quantity available was too small and the uncertainty in supply meant that only small-scale distributors were attracted to this particular fishery. However, in the last few years due to interruptions in supply of whale meat throughout Japan, distortions have occurred in marketing such that, combined with the attendant rising price, some of the minke meat has been purchased by brokers for sale to more distant markets.

There is a second reason for sale of STCW whale meat outside of the meat-producing community, and this relates to price. Whale meat (and other whale products) are graded by quality, e.g. up to twelve grades of cooked blubber, four grades of red meat (A through D), etc. The most expensive grade, A, and one of the middle-grade red meats (C) was hardly saleable in the local communities: the A grade was too expensive, the C was expensive relative to the better-quality B-grade meat. On the other hand the poorest quality meat (D) was so inexpensive that it was all consumed locally, and the B quality meat was suitable for all culturally significant culinary and ritual purposes. So grades A and C meat, for which no large demand existed in the local whaling community were sold outside. This is adaptive in two important respects: obtaining a higher price for some of the meat outside of the STCW community in a sense subsidizes the local consumption of meat by allowing local consumers to enjoy lower meat prices and secondly, ensuring any periodic oversupply of meat does not adversely distort the price structure in the local community.

CONCLUDING REMARKS

The scope and focus of this report has been influenced by concerns expressed last year that too much of the discussion on Japanese STCW has been of a theoretical nature and lacked fishery-management relevance. We agree that much time has been devoted to largely descriptive matters, but we would suggest that this has been useful in order to emphasize that Japan as a non-western society has different dependencies (human needs) for whale products than has been the case in the better-known Euro-American whaling enterprises.

This human need for whale meat is in respect to the highly valued and distinctive local food culture, and the social, symbolic, ceremonial and religious practices that continue today in these small coastal-whaling dependent communities.

Much attention has focused upon the role of commercial, or cash, use in Japanese STCW. It is not disputed that this particular fishery supports, and is in turn supported by, a variety of economic practices. However, Japan has been a monetized society for many centuries, and it is difficult to imagine how any contemporary community could continue to function without the extensive involvement of monetized commercial transactions. In keeping with this understanding, it was suggested by some delegations last year that the analysis move from a concern with quantifying commercial and non-commercial economic activities, to one that focuses upon other ways of operationally distinguishing between STCW and LTCW in Japan, as it was recognized that the former is small-scale and more locally centred, whereas the latter is large-scale and more nationally centred in several important respects.

As the attention of this Working Group is directed to considering the various forms of small-type whaling, in respect to this locally centered smaller-scale fishery, a meaningful economic analysis might ask, for example:

- By what means is the whale product made available to local consumers?
- To what end uses is the product put?
- How socially and culturally important is the production, distribution and consumption of whale meat in the local community?

Other questions, relevant to the management-relevant goals of this Working Group, might ask:

- Can these smaller-scale locally centred whaling activities be categorically distinguished in some unambiguous fashion from the larger-scale, non-locally oriented Japanese coastal whale fisheries?
- Can an exclusive regulatory regime be put into effect for specified whale stocks taken within a defined coastal hunting area?
- Can other whale species and stocks, gear-types, and large-scale corporations be effectively excluded from this fishery?
- Can the socio-economic, cultural and nutritional benefits to the local community be maximized?
- Can sound management of the whale resources and the whale fishery be assured?

It is our belief in presenting this report that a sustainable, multi-species, coastal whale fishery can be prudently managed on a co-operative basis.

With these practical goals in mind, this report has provided data to indicate that in respect to whaling company size, management structure and practices, labor requirements, harvest characteristics, local and non-local sales practices and overall community-based (compared to national-based) company orientation, there are enough distinct criteria to formulate an exclusive STCW operational plan which will effectively distinguish it, for regulatory purposes, from any form of industrial-scale whaling.

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APPENDIX : METHODOLOGY

In order to undertake a quantitative analysis of STCW catch data, a computerized database was created containing all hunt trips (whether successful or unsuccessful) undertaken by eight STCW boats for each of the eight seasons 1980 through 1987.

Information contained in the database includes:

Ship name
Data of voyage
Time leaving port
Time of catching whale(s)
Time of return to port
Latitude/longitude of caught whale(s)
Species of whale caught

Length of whale
Sex of whale
Stomach content*
Stomach fullness (0-4)
(*Krill; squid; fish)

Similar data were entered for LTCW sperm and Bryde's whales taken by two Nihon Hogei catcher boats operating from the coastal ports of Ayukawa, Taiji and Wada, and from the offshore Bonin Islands (Ogasawara) whaling station through the six years 1982-87.

Though not all data entries are complete for each of the 5,715 STCW voyages, catch records were obtained in connection with catching:

2,182	minke whales
309	pilot whales
210	Baird's beaked whales
801	sperm whales
882	Bryde's whales

Location of each whale caught is electronically obtained at the time of capture utilizing standard LORAN navigation equipment. These recorded co-ordinates are automatically converted into distance from the nearest coastline (or peninsular tip) with an accuracy of 5 percent using a customized computer program based on determining great circle distances.

A full analysis of STCW is being prepared for publication; the present report utilizes selected data relevant to the Working Group discussions. Grateful acknowledgement is made to the Japan Small-type Whaling Association for providing harvest data, and to the H.M. Tory Trust (University of Alberta), Social Sciences and Humanities Research Council of Canada (Grant 410-88-0421) and the Institute of Cetacean Research for financially supporting this work. Statistical analysis was carried out by Geographic Dynamics Corp., Edmonton.

OPERATIONAL PLAN FOR JAPANESE SMALL-TYPE WHALING

The Government of Japan
1990

CONTENTS

INTRODUCTION

Whaling and the utilization of whale products has long fulfilled important social, economic and cultural needs of Japanese. Small-type whaling (also referred to as STCW) continues to partially fulfill such needs in the few remaining whaling communities. The details of the STCW operational plan presented in this document are designed to ensure that this form of whaling remains small-scale and locally centered as well as functionally and categorically distinguishable from both large-type coastal whaling (LTCW) and pelagic whaling with which it differs significantly. Presentation of this operational plan for STCW should not be interpreted as implying that other forms of whaling did not in the past, or might not again in the future, serve other important needs.

This operational plan enumerates principles that aim to maximize the efficient and humane catching of whales for human consumption on a sustained use basis, with attention directed to minimizing loss of whales or the quality of the edible products. The operational plan also sets out principles that ensure the benefits derived from consumption of whalemeat occur to the greatest practical extent within the local whaling community through major reorganization of pre-existing production and distribution arrangements. Such a reorganization is undertaken to make explicit the differences that exist between STCW and LTCW and other forms of industrial whaling which in the past co-existed with STCW.

In addition to the following regulations, all Ministerial Ordinances of the Government of Japan (1983 and subsequent revisions) governing STCW and international regulations recognized by the Government of Japan shall be strictly observed.

DEFINITION

Small-type whaling is a defined category of whaling, where notwithstanding a degree of commercial activity consistent with sustained and efficient resource use, whaling sustains locally important, social, cultural, nutritional and economic institutions in particular whaling communities, and which, if stopped, would have serious and demonstrable adverse impacts on those communities.

The fishery is based upon non-endangered species and is to be managed for sustainability in a non-wasteful fashion, with sustainability determined under an appropriate inspection and by research program in which non-nationals are invited to participate.

LOCAL COMMITTEES ESTABLISHED TO MANAGE COASTAL MINKE WHALING OPERATIONS

Due to local concerns to preserve the distinctive food culture and community institutions based upon a seasonal supply of whalemeat, Management Committees have been established in Ayukawa (Oshika Town) and Abashiri. Representatives of local government, the Fishery Cooperative Associations and community groups provide the membership of these committees, each of which is chaired by the mayor of Oshika Town and Abashiri respectively.

The community-based Management Committees are responsible for planning, managing, and inspecting relevant aspects of minke whalemeat production, distribution and consumption. Insofar as some of these responsibilities are also carried out by the national government, the purpose of the local Committees' involvement is to emphasize to the greatest extent possible the importance of full co-operation being extended by all those involved in STCW production and use of minke whalemeat. The high degree of local involvement is seen as desireable and important in order to ensure an equitable and effective distribution of whalemeat upon which to a great extent, depends the cultural and social wellbeing of these local communities.

DISTRIBUTION AND CONSUMPTION

The Government of Japan places the greatest emphasis on meeting the whalemeat needs of the STCW communities as a first priority, in order to safeguard those communities' culture and social wellbeing.

In order to accomplish this goal, highest priority will be accorded to the traditional use of minke whalemeat, with high priority also given to low-income consumers and to use in hospitals, schools and other public institutions. These objectives will be achieved by the following three measures to be overseen by the local Committees:

(1) **Prevention of large-scale distribution of minke whalemeat from STCW communities to the urban**

centers

Management Committees have been established to oversee the following:

(i) Whalemeat will be handled only in small units (several only, at 10 kg per unit) by a limited number of authorized distributors. (This is a new measure introduced to stop the large-scale export of minke whalemeat; in the past a small number of distributors handled a large proportion of the available meat.)

(ii) Mandatory administrative inspection of distribution transactions will be enforced in order to eliminate unauthorized large-scale purchases (for possible black-market sales). Legal measures would be taken in the event any such black-market activities were discovered.

(2) **Maintaining Distribution Records**

Distributors will be required to keep records of all transactions and to submit such records to the Management Committee. The committee will make this information available for inspection by the Government of Japan as required.

(3) **Co-operation by the Municipal, Town and Village Offices**

The Management Committee will obtain the necessary co-operation from the local governments in order to accomplish the goals and fulfill the purposes of the committee.

PRODUCTION, PROCESSING AND INSPECTION

In addition to inspection by the government, the local committees will also oversee production and processing of STCW in respect to the following regulations and agreements.

Measures to be undertaken to avoid adverse effects in order to conserve whale stocks:

(1) Catch limits for the taking of minke whales shall be set by the IWC on the basis of advice from the commission's Scientific Committee and in consideration of social, economic, cultural and nutritional needs.

(2) The whaling season is limited to a maximum of six consecutive months in each calendar year and is set by the Government of Japan.

(3) Whaling operations shall only be carried out on whaling grounds normally within a half-day voyage of a port and no further than approximately 50 nautical miles from shore.

(4) Only licensed whale boats, with maximum of 50 gross tons weight, may participate in this hunt. A maximum of nine operating licenses shall be issued.

(5) Female whales with calves shall not be hunted; any accidental take of nursing females and/or calves shall immediately be reported to the licencing authority.

Measures taken to preserve community life and traditional culture:

(6) As (1) above.

(7) Processing of whale carcasses will be primarily for human consumption, though non-edible by-products will be processed to ensure as complete utilization as possible.

Measures to ensure thorough administrative control:

(8) As (2) above.

(9) As (3) above.

(10) Records (on a designated form) of each day's hunting shall be kept.

(11) A maximum of two minke whales per voyage shall be permitted.

(12) Whales when killed are to be towed to an authorized landing station for inspection, data collection and efficient processing for human consumption.

(13) In the case of whaling in Hokkaido coastal waters, where whales are fatter and decomposition occurs more rapidly, partial flensing of whales is permitted at sea in order to minimize loss of meat quality. In such cases, inspection for purposes of compliance with quotas and collection of biological data and specimens will be undertaken on board by government inspectors.

(14) Comprehensive data reports will be provided on request by the Government of Japan or by research institutes.

(15) In addition to the above regulations, all Ministerial Ordinances of the Government of Japan shall be observed.

(16) Whaling operators shall notify and enforce the rules and regulations among their employees.

(17) Whaling boats shall be equipped with communication equipment enabling them to have direct communication with the Management Committee.

(18) In the case of violation of these regulations, penalties stated in the Ministerial Ordinances of the Government of Japan and those of the local management committees, including temporary suspension from whaling, will be applied.

Measures to achieve work efficiency:

(19) To reduce chase time of the slow-speed catcher boats, auxiliary chase boats are to be employed where appropriate.

(20) Electronic equipment, capable to locating submerged whales is not to be employed. However, a transmitter without a reflection receiver is allowed to be employed in order to induce submerged whales to surface. This measure is taken in order to ascertain whether the whale is accompanied by a calf, and in order to reduce pursuit time.

Measures to ensure the collection of biological information:

(21) As (10) above.

(22) As (12) above.

(23) As (13) above.
(24) As (14) above.
(25) Whenever possible, encouragement and assistance is to be provided to qualified researchers interested in taking advantage of research opportunities afforded by whaling operations.

Measures to conform with IWC, requirements for humane killing and to verify quota compliance:

(26) As (12) above.
(27) As (13) above.
(28) All killing shall be by use of pentrite explosive harpoons with attention given to reducing the time of death and loss of whales to zero.

Measures to enhance safety and navigation:

(29) As (3) above.
(30) As (11) above.
(31) As (17) above.

QUANTIFICATION OF LOCAL NEED FOR MINKE WHALE MEAT FOR THE AYUKAWA-BASED MINKE WHALE FISHERY

The attached report contains important information on various aspects of the small-type whaling in Japan's coastal waters. The Government of Japan, therefore, submits this report as one of its documents to the IWC for reference to the Working Group to consider the situation of various aspects of small-type whaling.

1990

QUANTIFICATION OF LOCAL NEED FOR MINKE WHALE MEAT
For the Ayukawa-Based Minke Whale Fishery

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INTRODUCTION

Japanese small-type coastal whaling (STCW) is a regulated coastal fishery that until 1987 had an annual harvest quota of approximately 400 minke, Baird's beaked, and pilot whales. In recent years, STCW for minke whales was based out of Abashiri in Hokkaido, and Ayukawa on the main island of Honshu (Figure 1). Whalers harvested an average of 348 minke whales per year over the time period from 1951 through 1987 (see Table 1). As described elsewhere, both small-type coastal whaling and the resultant whale meat have held and continue to hold cultural significance in Japan (Akimichi et al. 1988; Iwasaki 1988, Takahashi et al. 1989; Braund et al. 1989; and Kalland and Moeran 1990). The International Whaling Commission (IWC) moratorium on commercial whaling resulted in a zero-catch limit being imposed on the STCW harvest of minke whales in 1988; however, STCW operations continue to harvest Baird's beaked and pilot whales. In an effort to obtain a STCW minke whale quota from the IWC for the purpose of meeting specific local cultural needs for minke whale meat, the Institute of Cetacean Research (ICR) commissioned this study to begin to quantify the cultural need for minke whale in those Japanese communities where the food culture and important social institutions depend upon this resource.

Objectives of the Research

The purpose of this research is to quantify the local human need for Ayukawa-based minke whale meat for culturally significant end uses. Culturally significant end use refers to the local food culture in which particular foods provide an important means of signifying a distinctive local or regional identity and includes not only the unique features

TABLE 1: STCW CATCH OF MINKE WHALES, 1951-1988

Year	Number of Whales	Year	Number of Whales
1951	334	1971	285
1952	485	1972	341
1953	406	1973	541
1954	365	1974	372
1955	427	1975	370
1956	532	1976	360
1957	423	1977	248
1958	513	1978	400
1959	280	1979	407
1960	253	1980	379
1961	332	1981	374
1962	238	1982	324
1963	220	1983	290
1964	301	1984	367
1965	334	1985	327
1966	365	1986	311
1967	285	1987	304
1968	239	1988	0
1969	234	1989	0
1970	320		
Average 1951-1987			348

Source: Government of Japan
Stephen R. Braund & Associates, 1990

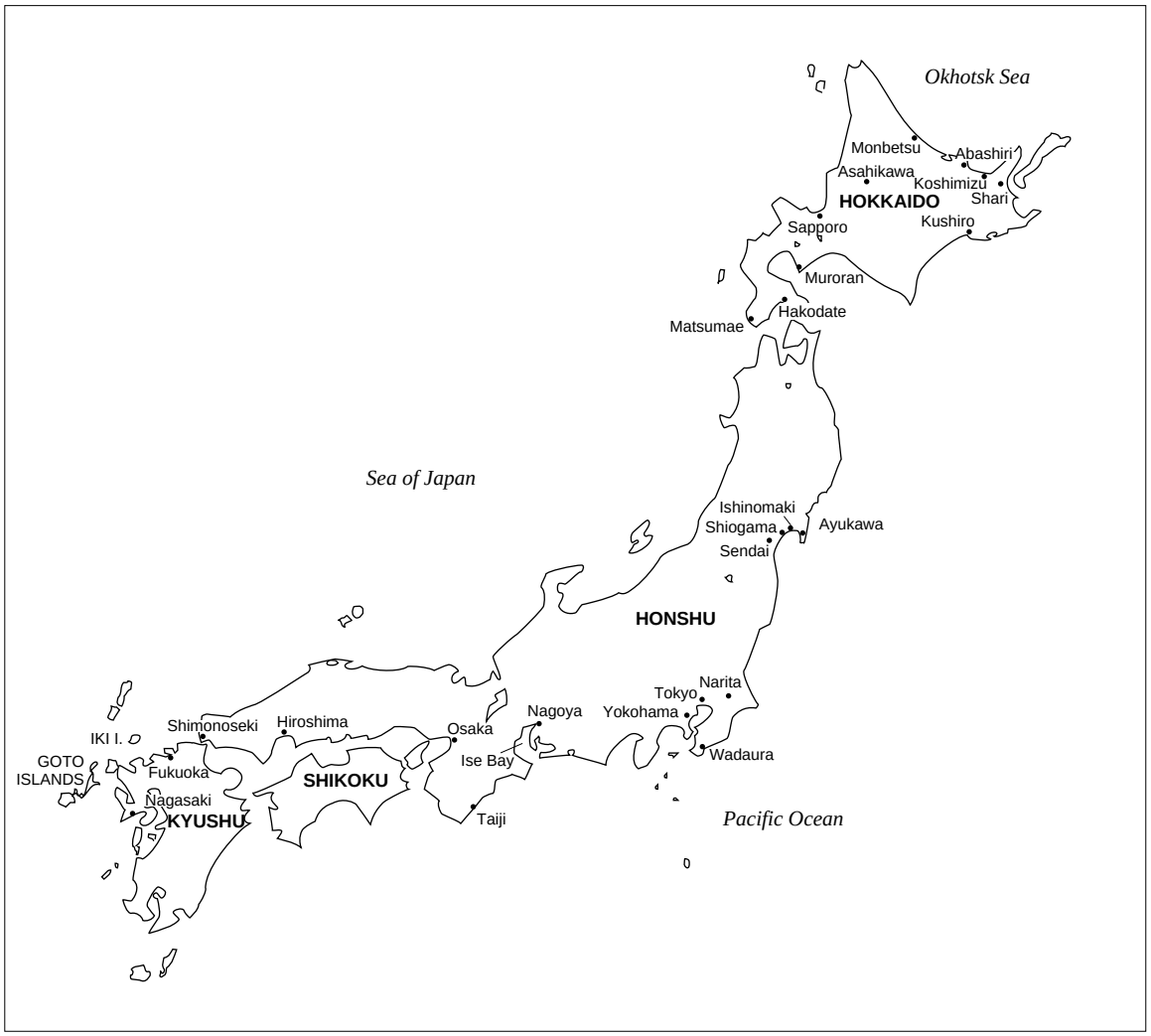
of the everyday diet but also the traditional use of special foods in association with particular culturally meaningful events. Preparation and consumption of appropriate, locally produced foods is one way in which people signify the distinctiveness yet comfortable familiarity of their home place, which has importance in affirming continuity with ancestors to whom respect and piety are ongoing obligations.

Ayukawa, the whaling port central to this study, was a small fishing village of about 80 households before the first whaling station was established there in 1906. With the establishment of the whaling station, Ayukawa grew rapidly, to over 700 households 50 years later, with neighboring communities as well as other more distant whaling communities contributing workers to the several Ayukawa-based whaling enterprises (Kalland and Moeran 1990). Whale meat thus came to have local dietary and cultural significance comparable to that occurring in other longer-established whaling centers of western Japan. This study focuses on the use of minke whale meat in association with specific culturally significant events, including the use of minke whale meat in the everyday diet since such use, in the whaling regions, is imbued with cultural importance.

Organization of This Report

The three main sections of this report are **STUDY DESIGN, DATA COLLECTION METHODS**, and **RESULTS AND ANALYSIS. STUDY DESIGN** presents the reasoning behind the method developed to accomplish the research objectives, including how the study team set out to measure those objectives and how the study team

FIGURE 1: MAP OF JAPAN



Stephen R. Braund & Associates, 1990

resolved problems that arose in the design stages of this project. **DATA COLLECTION METHODS** presents the methods used to implement the study design. The topics of sampling, pretesting the survey, and the interview methodology are addressed in this section. Finally, findings from the data are presented in **RESULTS AND ANALYSIS**.

STUDY DESIGN

In designing this study, the study team evaluated various possible approaches to quantifying cultural need for minke whale. The following section presents the study components considered and the main design problems encountered, including: how to quantify local human need for minke whale; how to define the geographic study area; and what time period of minke whale meat consumption to study. The process of clarifying the study focus and resolving the problems encountered resulted in a methodology for quantifying local need for minke whale in a STCW region of Japan. Similar procedures would have to be undertaken in any other STCW regions due to the particular historical, cultural and organizational characteristics which vary from locality to locality.

Quantification of Local Human Need for Minke Whale

A study was undertaken in Alaska to quantify the cultural need for bowhead whale by Alaska Eskimos (Braund et al. 1988) in support of a proposal to the IWC for an increase in an existing bowhead subsistence harvest quota. That study documented historic subsistence harvest of bowhead whales per capita and multiplied that ratio by the present Eskimo populations in the nine Alaska whaling communities to calculate the current (i.e., 1988) cultural need for bowhead whales in Alaska. This method of quantifying cultural need was accepted by the IWC. While this model was well suited to the Alaska situation and provided an important starting point for the design of the present study, the study team determined the Alaska model was not directly applicable to Japanese small-type coastal whaling.

In the first place, this Alaska study did not need to address the issue of whether the bowhead whale product was culturally significant, as this fact had earlier been accepted by the IWC. Therefore, the cultural significance of bowhead was not in question so much as the quantity of bowhead needed. Hence, all of the landed whales in a specified base period were commonly accepted as being culturally significant. However, given the existence of national distribution networks for whale meat originating from various whaling operations in Japan, together with the regionally diverse food culture, a quantitative assessment of the nature and extent of culturally significant uses of whale meat in any particular location remained a research question. Consequently, the present study set out to measure what are known ethnographically to be the culturally significant uses of minke meat and not simply the historic harvest levels (for which good data already existed).

Second, related to the Alaskan research, use of the bowhead whale occurred predominantly in the Eskimo whaling communities themselves. The isolated nature of the Alaska whaling communities inherently limited the cultural need question primarily to those (or nearby) communities. In Japan, however, the consumption, and hence distribution, of whale meat is widespread through communities other than the one in which the whale is landed. Hence, whale meat was presumed to be culturally significant over an undetermined population base, and consequently a per capita calculation would not be feasible.

The approach selected was to document use of whale meat in association with particular culturally significant events using a random sample survey of households, a survey of all STCW boat owners, plus surveys of other, non-overlapping places of use, such as local restaurants and inns, which commonly are involved in catering the important group celebratory events such as, for example, weddings, funerals, and memorial services.

Culturally Significant End Uses of Minke Whale

Once the study team determined the method to use to quantify need, it was necessary to develop a list of culturally significant events. As discussed in Akimichl et al. (1988), Iwasaki (1988) and Braund et al. (1989), Japanese STCW maintains and fulfills important traditional social and cultural functions in Japan. These include:

- the symbolic value of whales and whaling;
- the social and cultural value of whale meat for dietary, gifting, and ceremonial purposes;
- the importance of whale meat for maintaining a valued regional cuisine, local identity, and individual health and well-being;
- prestige associated with whaling;
- the perpetuation and transfer of culturally valued skills and traditions; and
- the spiritual relationship existing between members of the whaling community and whales.

Celebrated or special occasions (called *hare* in Japanese) are symbolized by the food served as well as clothing and other symbolic ornaments (e.g., branches of pine tree, flowers, dolls, banners, flags, sacred wine, religious icons and offerings). Whale meat, especially fresh minke whale meat in some whaling districts (and frozen meat elsewhere) is the most preferred food to accompany special occasions in some parts of Japan and is a celebrated food for several reasons that include:

- it is a gift of nature from the great sea;
- symbolically, the red color (of the meat) and white (of the blubber) signify happiness and good fortune;

- it is considered pure and promotes health and vigor;
- it is distinctively the local product;
- it is associated with community bonding (due to ceremonial giftings);
- it preserves well;
- its taste is liked by many people, who also consider it a healthy food; and
- whales are identified with Ebisu, god of good fortune.

Occasions when whale meat has cultural importance in Japan, outside of everyday use, include occasions with religious (both Shinto and Buddhist) significance, certain secular celebrations, celebrations of reunion, and opportunities to honor guests appropriately. These special occasions are categorized as follows:

Occasions with religious and/or ritual (both Shinto and Buddhist) significance:

New Year's Day
Initiation Day
Girl's Day
Boy's Day
Bon (Festival of the Dead)
New Year's Eve
Local Festival
Birth of child
Baby's first visit to shrine
Wedding
60th, 77th, and 88th birthdays
Memorial services for the ancestors
Building or reforming home and stores
Other (*Toshi-iwai*: praying for health and safety in a hazardous year)
Friends came for religious celebration with a gift

Occasions with minor religious significance and/or secular celebrations:

Old people's day
Entrance to school
Graduation from school
Wedding anniversaries
Family members' birthdays
Celebrating a new job
Celebrating a job promotion
Celebrating reception of special award
Cerebrating cure from illness

Occasions to celebrate reunion:

Family members coming home,
Relatives visiting,
Family friends from distant place visiting.

Occasions to treat guests:

Neighbors,
Friends and colleagues of the household head.

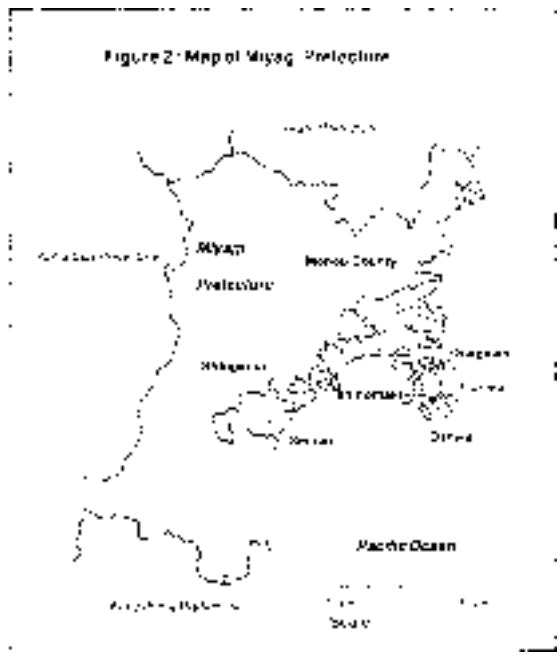
Everyday meals

The above special occasions were selected for inclusion in the study as indicators for measuring households' use of minke whale in a culturally significant manner. While serving whale meat may be culturally more important on certain occasions than on others, the study team decided that all occasions would be treated similarly, i.e., the study would conduct a simple count of whale meat use in association with cultural events, rather than attempting to weight some events more heavily than others. This approach offered the most straightforward and unequivocal yet minimal measure of culturally significant end use.

When people express a preference or desire for a particular food or meal, the underlying determinants of this choice are both personal and cultural. However, quite often the personal preference has cultural roots through, for example, familiarity or association occasioned by place or family background. This report provides an extensive and explicit breakdown of culturally significant end uses of whale meat. Everyday use is included in this list because it has local cultural value and significance. When social scientists speak of a 'food culture' they do not restrict their attention to those highly festive calendar events which may only occur once or twice (or less) for each person or household per year. Food cultures are constituted more especially by the high frequency, patterned practices which characterize the distinctiveness of everyday dietary practices.

To have undertaken research to fully explore the large range of cultural meanings associated with the everyday use of whales would have been very demanding for those

FIGURE 2: Map of Miyagi Prefecture.



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responding to the questionnaires. However, the significance of everyday diet, in cultural and psychological terms, is generally self-evident, and in regard to the STCW communities has been described in earlier reports (Akimichi et al. 1988; Glass and Englund 1988; Braund et al. 1989; Manderson and Hardacre 1989; Freeman and Iwasaki-Goodman 1990).

The above list of culturally significant end uses of whale meat were designed specifically to fit the particular local cultural circumstances of the Ayukawa-based whale fishery. A similar research effort will be required at other STCW communities to develop appropriate methodological categories that reflect the particular cultural realities of these different locales.

Definition of the Study Area

Once the study team compiled the above list of culturally significant uses, the next step was to identify the geographic area for data collection. As mentioned above, fresh minke whale meat traditionally was distributed to surrounding communities from Ayukawa, one of two small-type coastal minke whaling centers (the second being Hokkaido)[1]. Distribution of whale meat in Japan is very complex with numerous retailers, middle men, local and non-local distributors. However, the purpose of this study was to quantify culturally significant *local* end use of minke whale. The study team began with the assumption that 'local' in this context was most appropriately understood to mean cultural proximity rather than geographic proximity; 'local' was not meant to restrict culturally significant uses of whale meat to any predetermined geographic area. If demand for whale meat originated from a traditional or customary food culture activity, distance was not an issue. Thus, culturally significant end uses of whale meat could occur at some distance from the whale landing port and still be considered 'local' since kinship, economic, and/or other networks provide cultural continuity between these communities. Alternatively, a community comparatively close to the landing port might be found to show little culturally significant use of minke whale meat as it might have its own food culture related to, for example, an agricultural economic base. The interaction of such factors as social organization, history, demography, ecology, topography, and culture result in a local consumption area that does not simply fit into concentric circles emanating from Ayukawa, but rather projects irregular and perhaps at some points discontinuous boundaries on the region.

Although the geographic extent of the local whaling culture was undetermined at the outset of the study, and cultural proximity was considered more important than geographic proximity in defining 'local,' the study team nonetheless had to select, for practical reasons, a limited area in which to conduct the survey. The study team initially attempted to identify the local distribution area for minke from the Ayukawa-based and Hokkaido-based minke whale fisheries in order to determine the geographic area within which to distribute questionnaires. Ultimately, however, only one of those areas could be studied with the limited resources available (time, personnel, and money) and, consequently, the Hokkaido area was omitted from this survey and remains a topic for future research.

Based on discussions with the Japan Small-Type Whaling Association and other key informants, Oshika township (which includes Ayukawa and other small communities), Onagawa township, Ishinomaki city, and seven communities of Monou County were selected initially for inclusion in the study of Ayukawa-based minke whale consumption. The geographic background of Ayukawa heads of household in 1988 indicate that 28.2 percent (378) originated in Ayukawa, and 32.3 percent (532) from neighboring communities in Oshika township or from Onagawa township, Monou County or Ishinomaki (Kalland and Moeran 1990). After pretesting the survey in Oshika, the field coordinator traveled to Monou County and realized that circumstances were different (e.g., low in-migration from the Ayukawa area and few sources of whale meat). The study team determined Monou County would require a modified survey and distribution technique which would exceed existing funding and time constraints. Thus, the seven towns of Monou County also were excluded from this survey, leaving Oshika township, Onagawa township, and Ishinomaki city (see Figure 2). This area was considered large enough to include the main area of Ayukawa-based culturally significant end use of minke whale, yet of a manageable size for conducting a survey under the existing time and cost parameters. The study team also anticipated that the area might be large enough to test the hypothesis that consumption levels (though not necessarily the cultural significance of whale meat) will decrease gradually as one moves away from the source (i.e., Ayukawa), eventually disappearing where whale meat has little or no significance to the majority of the residents of that distant community. Thus, the study team assumed that this study would begin to define empirically the geographic extent of the local Ayukawa-based whaling culture, and the findings are discussed below under **RESULTS AND ANALYSIS**.

Also, due to time and budget constraints, the study team did not sample Sendai, Shiogama or other towns farther from Ayukawa, where culturally significant consumption may or may not exist. Culturally significant use of whale meat in those communities is a topic for further research.

The Study Population

The major emphasis of this study was on household use of minke whale meat in a culturally significant context, and a random sample of households was designed to survey a representative proportion of households in Oshika township, Onagawa township, and Ishinomaki city regarding their use of minke whale meat at home. Because the STCW boat owners accounted for a slightly different

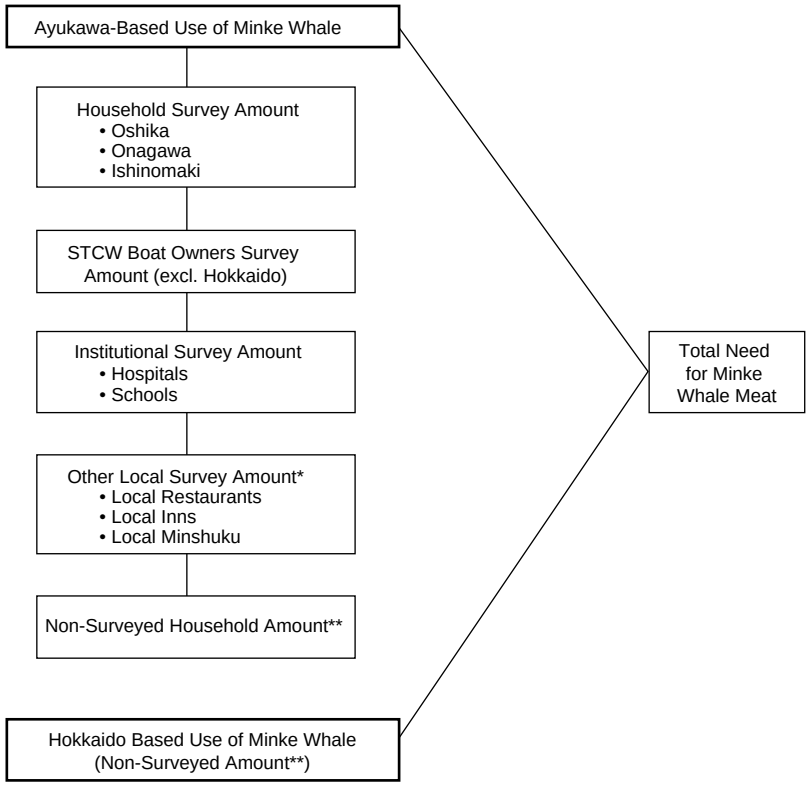
type of use and relatively higher use levels, and because there were only eight boat owners (all available to be surveyed), this group was surveyed separately from the random sampling of households.

The study team realized that to collect data only on household use would not cover all types of use of Ayukawa-based minke whale. Minke whale is served at local restaurants, inns, and *minshuku* (lodges or boarding houses which are usually private homes offering bed and meals to tourists) in Oshika township, as well as at certain institutions (schools and hospitals). Consequently, surveys were developed to obtain data regarding minke whale meat consumption at these places. Local restaurants, inns, and *minshuku* that serve local minke whale meat do so frequently in the course of catering weddings, funerals, and other significant occasions. Additionally, these places are part of the uniqueness and attractiveness of Oshika to outsiders and are a significant factor in attracting tourists to the town. This has cultural significance for local residents (in addition to economic significance) as it enables them to display their local identity. Use at public institutions is significant for pride and identity-instilling as well as health-promoting purposes.

In all, seven survey instruments were developed to account collectively for minke whale meat use in different situations. Three household surveys were administered to random samples, one in each of three areas (Oshika, Onagawa, and Ishinomaki). Combined with a fourth survey of all STCW boat owners, all household use of minke whale within the study area would be covered. A survey of local institutions, a survey of local restaurants, and a survey of local inns and *minshuku* completed the known universe of culturally significant local end use of minke whale in the study area.

Figure 3 presents a conceptual diagram of the components of culturally significant minke whale use in Japan, including those components not targeted in this study (i.e., the farther reaches of the Ayukawa-based whale consumption area and the entire Hokkaido-based consumption area).

FIGURE 3: Conceptual Diagram of Components of Total Need for Minke Whale Meat



*Restaurants, inns and *minshuku* cater to both tourists and to local residents' weddings, funerals, and other ceremonial events.

**Quantitative data not available. Future research is necessary to quantify these amounts.

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Time Period Surveyed

As the Alaska study quantified cultural need based on a history of actual past use, the study team for this project also focused on an actual, measurable history of use. A survey can be designed to ask, "Did you ordinarily prepare minke whale on wedding anniversaries?" However, such a question lacks a specific time reference and thus encourages a generalized, normative response. A more effective way to obtain accurate data is to ask about particular events within a specific time period. Because most of the culturally significant occasions being measured were annual events, the study team decided to use a one-year time period. The most recent years of 1988 and 1989 were ruled out because the moratorium on commercial whaling was in effect at that time and consumption of locally harvested minke whale did not occur. The year 1987 was considered as it was assumed to be the most recent (and likely most accurately recalled) year of relatively normal pre-moratorium minke whale consumption. However, the pretest of the survey found that 1987 was not a normal year. Ultimately, Showa 55 (1980) was selected for reasons explained under **Pretest**.

Summary

The study goal was to quantify the culturally significant local end use of minke whale. The method chosen for quantification was based upon a method used in Alaska and previously accepted by the IWC, modified to accommodate the unique characteristics of Japanese small-type coastal whaling. The approach used here was to define a study area and conduct a randomly sampled survey to quantify use of whale meat in association with specific, named cultural events in a specified time period, namely the year 1980. Seven separate surveys were conducted to capture the different kinds of culturally significant minke whale meat use including: in the home (consisting of three separate surveys by area for Oshika, Onagawa, and Ishinomaki); boat owners' use in the community and on the whaling boat; institutional use (hospitals and schools); local inns and *minshuku*; and local restaurants.

DATA COLLECTION METHODS

In this section, the steps taken to implement the study design are described. These steps include designing the sampling methodology, developing the survey instruments, pretesting those instruments, and conducting the surveys.

Sampling Design

Because surveying all households in Oshika, Onagawa, and Ishinomaki was not practical, randomly selected samples of each area's households were chosen to be surveyed. A random sample is considered an appropriate means of obtaining a representative sample of all households in the survey area. Data from the sample households are weighted to represent all households in the community. Sample sizes for each community were derived with the intent of generalizing results on a community basis at a maximum estimated sampling, error of plus or minus four percentage points at a 95 percent level of confidence. Based on the results of a previous survey in Oshika (Takahashi and Oshika Community Center, 1988), the study team assumed the response rate for the survey would be approximately 75 percent.

Oshika Township

Oshika township consists of 2,004 households which are divided into 22 *gyosei-ku* or administrative districts. Most of these *gyosei-ku* are small villages by themselves, and some are parts of larger villages. With the goal of obtaining a final sample of at least 200 households, surveys were distributed to every seventh household for a total of 285 households. Questionnaires were distributed by *gyosei-ku* captains (the residents who are responsible for assisting the municipal government in their districts) to the randomly sampled households indicated by the field coordinator. Use of the *gyosei-ku* network was advantageous as it is an established communication network through which the municipal government and social service agencies routinely distribute and collect various kinds of information. The response rate for the distributed questionnaires was 77 percent in Oshika, yielding 219 returned questionnaires (see Table 2).

TABLE 2: Japanese Small-type Coastal Whaling Survey — Sampling

		Total Population	Total Households or Places	No. of Questnnres Districted	No. of Questnnres Returned	Response Rate
House-hold Survey	Oshika Township	7,425	2,004	285	219	77%
	Onagawa Township	14,308	4,155	400	323	81%
	Ishinomaki City	123,185	37,110	550	380	69%
Boat Owners[2]			7	7	7	100%
Oshika Special Places	Public Institutions		3	3	3	100%
	Inns, minshuku		84	84	51	61%
	Restaurants		17	17	17	100%

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Onagawa Township

Onagawa consists of 43 districts with a total of 4,155 households. Onagawa has a similar (though less well organized) district communication system as in Oshika. The field coordinator used the district system to ensure an evenly drawn sample of approximately one in every 10 households, using volunteers (town hall workers who came from various districts and local Fisheries Cooperative Association members) to distribute the questionnaires in their districts. The questionnaires were later collected by the same volunteers. Out of 400 questionnaires distributed, 323 were returned for a response rate of 81 percent (Table 2).

Ishinomaki City

Ishinomaki is a large city with approximately 37,110 households, over 10 times larger than Oshika. The city consists of six large sections: 1. Ishinomaki; 2. Tashiro; 3. Watanoha; 4. Inai; 5. Oginohama; 6. Hebita. A similar method as Onagawa was used for sampling and distribution of questionnaires in Ishinomaki.

The field coordinator assigned a number of sample households evenly to each section (and to smaller districts within the large sections) based on the number of households in each section, and asked the volunteers (city hall workers) to distribute and collect the questionnaires within their sections. City hall workers were convenient to use for distributing questionnaires throughout the city because, due to a city hiring practice, they collectively represented all of the sections and most of the districts within the sections.

Of the 550 questionnaires distributed in Ishinomaki (i.e., one in every 68 households), 380 were returned for a response rate of 69 percent.

Boat owners

A 100 percent sample of the STCW boat owners who landed minke at Ayukawa was sought and obtained. Because the Hokkaido area was omitted from this survey effort, the data from the Hokkaido boat owners are not included in this study. Those data are part of a future study. The present sample includes only those boat owners who owned boats in 1980, the study year. One of the current boats was not operating in 1980 and hence was excluded from this survey.

Public Institutions

One hospital and two schools constitute 100 percent of the public institutions These institutions provide meals that upon occasion contain whole meat. Data were collected from all three of these places for a 100 percent response rate.

Inns and Lodges

An estimated 84 inns and *minshuku* accommodate tourists in Oshika township. The majority of these places are *minshuku*, private homes that offer bed and meals to tourists. Fifty-one of these places completed the questionnaire, a response rate of 61 percent.

Restaurants

Seventeen restaurants on the Oshika Peninsula were sampled. Fifteen of these restaurants are in Oshika township and two are within Ishinomaki city on the Oshika Peninsula. The restaurants all are locally owned. All 17 restaurants responded to the survey, for a 100 percent response rate.

Pretest

In February 1990, after the study team had drafted the survey instruments, the field coordinator contacted Oshika township officials and explained the study team's plans. After this initial contact, the field coordinator traveled to Oshika to administer the pretest.

Consistent with its purpose, the pretest proved an important step in refining the instruments. Results from the pretest indicated that three minor revisions of the survey instrument were necessary. First, the study team found that the proposed sample year of 1987 was inappropriate and an alternative study year needed to be identified. Second, the pretest respondents could not always remember the type of whale eaten on a specified occasion in the past. Third, in Oshika township, current culturally significant consumption could be tested in 1989 due to the distribution of Antarctic minke whales caught in association with the Government of Japan's (GOJ) Antarctic research program.

Incorporation of questions about current use of minke whale would yield data to measure the extent that culturally significant consumption persists today. Each of these revisions is discussed more fully below.

Selection of an Alternate Study Year

During the pretest, the field coordinator found that 1987 was not representative of historical local whale meat consumption mainly because of the impending moratorium, which caused a period of disruption to traditional distribution and consumption patterns during the last few years of commercial whaling (i.e., the early to mid-1980s). The study team chose Showa 55 (1980) as the most appropriate sample year for the following two reasons:

First, as stated above, the impending moratorium caused anomalous use of minke whale in 1987. In 1982, the IWC decided to impose the moratorium on all commercial whaling. Although the moratorium did not take effect in Japan until the end of the 1987 season, the decision, together with the progressively smaller quotas on whale harvests, drastically affected the distribution and consumption of whale products from 1982 on. Prices began to rise sharply and it became increasingly difficult for local consumers to obtain sufficient amounts of whale meat at the traditionally low price. An abnormally large portion of the whale meat produced in the Ayukawa area was being shipped directly to large cities where it could be sold for a better price. The problem of increasing prices accelerated in 1984 when Japan withdrew its objection to the moratorium. Hence, the study team determined that the sample year should be prior to 1984 and preferably before 1982.

The second reason for changing study years pertains to respondent recall. The pretest found that local people

seemed to think of time periods in units of five or ten years. Consequently, they more easily recalled five or ten years past rather than seven, nine or 12 years back, for example, Thus, 1980 was selected as the base period of study because it was the most easily recalled pre-moratorium year.

Recall of Type of Whale Used

During the pretest, the field coordinator also found that people had difficulty reporting specifically about minke whale meat because they had trouble remembering what whale species' meat they ate on a particular event 10 years ago. However, respondents had little difficulty remembering if they ate whale meat (without specifying the type of whale) on the same event 10 years ago. Historically, people were used to consuming other species of whale (primarily sperm whale in the study area) in addition to minke, as the Japanese whale-based food culture involves a variety of whale species. Building a cultural argument based solely on minke whale meat is somewhat artificial and too narrow, and does not accurately reflect the local whaling culture. Even in 1987, Ayukawa provided sperm whale meat in addition to minke whale meat to the local area. Sperm whale meat and minke whale meat were in many ways complementary with one another: minke was produced in the summer, while sperm whale was harvested in the winter; minke meat was primarily consumed raw when fresh, while sperm whale meat was cooked or dried; minke meat was somewhat expensive, while sperm whale meat was considerably less so. Many households consumed both minke and sperm whale meat throughout the year.

The above considerations led the study team to decide that, because respondents could relatively easily recall consumption patterns about whale meat in general, the survey questions would be asked in this manner first. Then in another question, the respondents would be asked to estimate the proportion of minke whale meat that they used relative to other types of whale meat.

Current Antarctic Minke Use

The field coordinator also pretested questions about minke whale meat use in 1989 in Oshika from the GOJ's Antarctic research program. Respondents found these questions easy to answer and the additional questions did not appear to overburden the respondents. Thus, to facilitate a comparison between present (1989) and past (1980) use patterns, the study team also asked Oshika households about last year, 1989, when a limited amount of minke whale meat was available from the Antarctic research program. A comparison or responses was considered important as an indicator of a culturally significant linkage between traditional use of all whale with current use of available minke. These questions could not be asked in Onagawa and Ishinomaki because Antarctic minke whale meat was not distributed in these two towns.

Interview Methodology

Ideally, surveys of consumers are based on face-to-face or telephone interviews. However, the study team rejected this design because funding for such an expensive approach was not available. At the same time, the study team was encouraged to note the successful approach used in 1988 in Oshika township where the cooperation of local officials produced an 80 percent response rate to a written questionnaire of similar content (Takahashi and Oshika Community Center, 1988).

Oshika Township

Oshika township consists of 7,425 people living in 15 villages which are separated by steep mountains. Degrees of involvement with whaling vary from village to village, but each village is connected with one another through complex marriage and other social ties. From a previous survey (Takahashi and Oshika Community Center, 1988), it was known that all the villages consumed whale meat.

As described previously in **Sampling Design**, the field coordinator decided to use the locally established *gyosei-ku* network system for administering the survey. Most of the 22 *gyosei-ku.*, or districts, are small villages by themselves, and some are parts of larger villages. The *gyosei-ku* system not only facilitated sampling but also provided an efficient way to distribute and collect the questionnaires under the auspices of a network already familiar to the study households.

Each *gyosei-ku* has a captain, a resident of the district who, as a volunteer, helps the municipal government with public information programs. Captains distributed the questionnaire to the randomly selected (one in every seven) households, along with a cover letter. The cover letter explained the purpose of the survey and asked respondents to answer the questions and return the questionnaires to the captains. For those who did not bring their questionnaires to the captain, attempts were made to collect them at the respondents' homes. The local *gyosei-ku* captains monitored progress of the survey and provided an important local support network for successful administration of the survey.

Onagawa Township

Onagawa is a typical fishing area with a population of 14,308 and consists of 43 districts (or *gyosei-ku*) in 29 villages. All the villages in this town face the sea, and fishing is the most important industry in most of the villages.

Onagawa has a *gyosei-ku* communication network system similar to that in Oshika. However, the system in Onagawa is not as efficient as in Oshika. The field investigator could not activate the system and distribute and collect the questionnaires within the limited time period available. Therefore, the district system was used to determine how many households would be sampled, but was not used to physically distribute and collect the questionnaires.

The director of Industry and Tourism in Onagawa cooperated to find volunteers and coordinate the distribution and collection of questionnaires. Volunteers (town hall workers who came from various districts and local Fisheries Cooperative Association members) distributed the questionnaires to randomly selected households (one out of every 10) in the 43 districts. The questionnaires

were then collected by the same volunteers.

Ishinomaki City

As stated previously, Ishinomaki is a large city with 123,185 people residing in six large districts within the city:

1. Ishinomaki is the most densely populated. This district has a considerable amount of maritime industry, fishing, mariculture, processing of fish and other fishing products, wholesaling and retailing of fish and other sea products.
2. Tashiro is an island where fishing is the main industry.
3. Watanoha is also maritime-oriented with a considerable amount of fishing and mariculture.
4. Inai is an agricultural village with no fishing activities.
5. Oginohama is maritime oriented with extensive fishing and mariculture.
6. Hebita is a recently developed residential area with little maritime activities though it faces the sea. However, it has a considerable number of residents who have migrated from Oshika with the decline of whaling. A large proportion of the migrants from Oshika (in the last 20 years) settled here.

As with sampling in Ishinomaki, the administrative districts were too large and the communication networks in those districts were too formalized for this survey to make use of in the limited time available. Thus, the same method as Onagawa was used for administering the survey.

The director of Fisheries of Ishinomaki city cooperated in finding volunteers and coordinating distribution and collection of the questionnaires. Volunteers (city hall workers) were asked to distribute and collect the self-administered questionnaires to one randomly selected household out of every 68 households within the sections where they lived.

Boat Owners, Local Institutions, Restaurants, Inns and Minshuku

As with the household survey, the high numbers of desired respondents prohibited the study team from conducting face-to-face interviews with owners or managers of the remaining survey populations. Consequently, the study team mailed self-administered questionnaires to the seven STCW boat owners, one hospital, two schools that serve meals, 17 restaurants, and 84 inns and *minshuku* in Oshika township.

RESULTS AND ANALYSIS

HOUSEHOLD CULTURAL USES OF WHALE PRIOR TO MORATORIUM

Based on the household survey in Oshika, Onagawa, and Ishinomaki, Table 3 shows the percentage of use by cultural event 10 years ago (1980) for all whale. Large proportions of households in all three places traditionally consumed whale in connection with culturally important events. The percentages are higher closer to the whaling center (Ayukawa, which is located in Oshika) and decline as one moves out to Onagawa and Ishinomaki.

Household Cultural Uses of Minke Whale Distributed in Oshika 1988-1989

Comparison of the past consumption patterns by cultural event (presented in Table 3) with more current minke whale consumption patterns (Table 4) is possible for Oshika based on the 1988 and 1989 distribution of minke whale by-product of the GOJ's Antarctic research program. Because Onagawa and Ishinomaki residents have not received these special minke whale meat distributions, recent consumption patterns for these areas are not available. The current data for Oshika indicate that the 1989 minke consumption patterns by cultural event were generally similar to consumption of all whale ten years ago.

Amount of Minke Whale Used for Cultural Purposes Prior to Moratorium

The household survey asked respondents to report the cumulative number of persons served at each cultural event 10 years ago. To be able to convert the number of servings into kilograms served, the questionnaire asked how the household prepared minke whale meat at that time and provided a list of six different methods for respondent choice. Since the different methods involve different amounts per serving, it is possible to take into account different household consumption patterns and estimate an average serving size. For each 'yes' answer to the six methods of preparing whale meat, the study team assumed that each method occurred with equal frequency. To calculate the average serving size per household for each town, the study team summed all of the grams per serving for the 'yes' answers on the survey and divided by the number of 'yes' categories. For example, the average serving weight per household for Oshika was 130 grams, for Onagawa was 150 grams, and Ishinomaki 170 grams.

Through key informant interviews, the study team had determined the following portion sizes commonly associated with each method of cooking whale meat:

- Raw: 100 grams
- Roasted: 300 grams
- Dried: 170 grams
- Boiled in sauce: 100 grams
- Soup or stew: 50 grams
- Deep Fried: 100 grams

Because the questionnaire asked about 'all whale' and not specifically minke, it was necessary to convert the responses into minke whale. To do this, the questionnaire asked the respondent to estimate how much of the total whale meat that the household ate 10 years ago was minke whale. This information provided a conversion for each household that enabled a calculation from all whale eaten to just minke whale eaten in 1980.

TABLE 3: Household Cultural Uses of Whale Prior to Moratorium [1]

Cultural Use	Oshika	Onagawa	Ishinomaki
New Year's Day	76%	52%	25%
Initiation Day	8%	9%	2%
Girl's Day	11%	9%	3%
Boy's Day	17%	15%	7%
Bon	58%	26%	17%
Old People's Day	10%	11%	6%
New Year's Eve	64%	34%	18%
Local Festival	56%	46%	16%
Birth of Child	17%	12%	4%
First Entrance to Shrine	5%	7%	3%
Entrance to School	24%	15%	6%
Graduation from School	21%	17%	5%
Wedding	36%	21%	8%
Wedding Anniversary	7%	11%	3%
Birthday	26%	23%	13%
New Job	14%	12%	5%
Job Promotion	4%	8%	2%
Receiving Special Award	8%	12%	7%
Curing Celebration	14%	12%	7%
60th, 77th, 88th Birthdays	5%	8%	4%
Memorial Service	29%	11%	8%
Building Home or Store	23%	28%	11%
Return of Family Member	56%	34%	23%
Visiting Relative	55%	40%	30%
Visiting Neighbor	14%	13%	10%
Response to Friends w/Gift	21%	18%	9%
Guests of Household Head	27%	25%	16%
Visitors from Distant Place	29%	28%	19%
Other Visitors	24%	27%	16%
Everyday Meals	82%	82%	89%

(1) Percent of non-whaling households reporting use about 10 years ago (1980)

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TABLE 4: Household Cultural Uses of Minke Whale in Oshika

Cultural Use	Percent of Non-Whaling Households Reporting Use Last Year[1]	Percent of Non-Whaling Households Reporting Use About 10 Years Ago (1980)
New Year's Day	90%	76%
Initiation Day	6%	8%
Girl's Day	7%	11%
Boy's Day	8%	17%
Bon	66%	58%
Old People's Day	12%	10%
New Year's Eve	68%	64%
Local Festival	40%	56%
Birth of Child	4%	17%
First Entrance to Shrine	5%	5%
Entrance to School	8%	24%
Graduation from School	9%	21%
Wedding	12%	36%
Wedding Anniversary	6%	7%
Birthday	33%	26%
New Job	5%	14%
Job Promotion	3%	4%
Receiving Special Award	3%	8%
Curing Celebration	10%	14%
60th, 77th, 88th Birthdays	5%	5%
Memorial Service	18%	29%
Building Home or Store	6%	23%
Return of Family Member	64%	56%
Visiting Relative	54%	55%
Visiting Neighbor	5%	14%
Response to Friends w/Gift	5%	21%
Guests of Household Head	17%	27%
Visitors from Distant Place	19%	29%
Other Visitors	22%	24%
Everyday Meals	84%	82%

(1) Based on December 1988 to December 1989 distribution of Antarctic minke whale meat from GOJ Antarctic research program

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Thus, the amount (in kilograms) of minke consumed by cultural event was calculated as follows:

a) The mean household serving size multiplied by the cumulative number of people served over all occurrences of this occasion;
b) Multiply the answer to a) above by the percent of all whale that was minke whale.

Table 5 presents the results of the various surveys. Part I (non-boat owner households) represents the results from the household survey in Oshika, Onagawa, and Ishinomaki. The study team made every effort to represent the

consumption patterns in the smallest segments possible rather than lumping categories of use. Thus, the amount eaten for everyday meals is added to the amount eaten for the other cultural events.

A separate survey for whale boat owners provided the data for Part II in Table 5. The amount of minke that the boat owners used themselves and provided for crew members on board was not gathered in the household survey, reported above. As noted on Table 5, the minke whale used by whale boat owners does not include the use by the two Hokkaido STCW boats. As discussed under **Definition of the Study Area** above, the Hokkaido area was omitted from the present survey effort and remains a topic for future research. The Hokkaido boat owners' minke whale use is a part of that future study.

Part III of Table 5 represents the findings for the surveys

TABLE 5: Kilograms of Minke Whale Used for Cultural Purposes Prior to Moratorium (1)

	Cultural Use	Oshika		Onagawa		Ishinomaki		Total	
I. Non-Boat Owner Households	New Year's Day	2,253		1,394		5,881		9,528	
	Initiation Day	100		124		287		510	
	Girl's Day	128		138		303		569	
	Boy's Day	205		244		1,004		1,453	
	Bon	1,361		760		4,144		6,265	
	0ld People's Day	175		191		847		1,213	
	New Year's Eve	827		592		2,415		3,835	
	Local Festival	1,026		1,160		2,868		5,054	
	Birth of Child	385		283		744		1,411	
	First Entrance to Shrine	12		101		546		659	
	Entrance to School	452		277		946		1,675	
	Graduation from School	315		285		724		1,323	
	Wedding	1,475		1,078		4,767		7,321	
	Wedding Anniversary	121		295		540		955	
	Birthday	571		564		3,107		4,241	
	New Job	181		194		1,009		1,383	
	Job Promotion	84		117		430		631	
	Receiving Special Award	149		290		1,236		1,675	
	Curing Celebration	270		256		1,877		2,403	
	60th, 77th, 88th Birthdays	89		281		805		1,174	
	Memorial Service	1,300		611		4,053		5,964	
	Building Home or Store	1,121		1,610		5,270		8,000	
	Return of Family Member	1,486		1,161		10,722		13,370	
	Visiting Relative	1,621		1,325		13,267		16,212	
	Visiting Neighbor	550		362		5,233		6,145	
	Response to Friends w/Gift	593		599		3,631		4,822	
	Guests of Household Head	528		1,000		8,395		9,923	
	Visitors from Distant PLace	619		742		8,400		9,761	
	Other Visitors	634		714		4,057		5,405	
Non-Boat Owner Household Subtotal:		18,628	16*	16,745	14*	97,508	81*	132,880	111*
Everyday Meals		19,033	16*	19,842	17*	77,111	64*	115,987	97*
Non-Boat Owner Household Total:		37,661	31*	36,587	30*	174,619	146*	248,867	207*
II. Whaling Boat Owners (excl. Hokkaido)	Use by Owners	1,621	1*	—		—			
	Food for Crewmembers	2,105	2*	—		—			
Whaling Boat Owners Total:		3,726	3*					3726	3*
III. Public Places	Local Restaurants	4,929	4*						
	Local inns & Minshuku	1,857	2*						
	Public Institutions	18	0*						
Public Places Total:		6,804	6*					6,804	6*
IV. Total:		48,191	40*	36,590	30*	174,619	146*	259,471	216*

(1) Based on survey of practices about 10 years ago (1980)

* Refer to Table 8

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of public places (local restaurants, local inns and *minshuku*, and public institutions such as schools and a hospital in Oshika).

For comparative purposes, Table 6 presents the results of the 1990 Oshika survey questions related to the December 1988 to December 1989 distribution of minke whale meat by-product from the GOJ Antarctic research program. The GOJ distributed 24,500 kilograms of Antarctic minke to the Oshika Town office for equitable redistribution to individual Oshika households during this period. This survey of a random sample of Oshika households weighted to represent all of the households accounts for 26,346 kilograms of that minke. Although the survey amount is larger than the amount actually distributed, it is only approximately 7.5 percent higher. The study team concluded that the survey methodology was successful based on the surveyed results being within 7.5 percent of the actual distribution.

TABLE 6: Kilograms of Minke Whale Used for Cultural Purposes in Oshika (1)

	Cultural Use	Kilograms	
I. Non-whaling Households	New Year's Day	3,229	
	Initiation Day	75	
	Girl's Day	91	
	Boy's Day	139	
	Bon	1,933	
	Old People's Day	158	
	New Year's Eve	1180	
	Local Festival	901	
	Birth of Child	119	
	First Entrance to Shrine	71	
	Entrance to School	165	
	Graduation from School	168	
	Wedding	570	
	Wedding Anniversary	154	
	Birthday	817	
	New Job	91	
	Job Promotion	103	
	Receiving Special Award	33	
	Curing Celebration	213	
	60th, 77th, 88th Birthdays	96	
	Memorial Service	899	
	Building Home or Store	304	
	Other Celebration	367	
	Return of Family Member	1,840	
	Visiting Relative	1,206	
	Visiting Neighbor	111	
	Response to Friends w/Gift	92	
	Guests of Household Head	285	
	Visitors from Distant Place	343	
	Other Visitors	496	
	Non-Boat Owner Household subtotal:	16,249	
	Everyday Meats	10,097	
	Non-Boat Owner Household Total:	26,346	26,346
II. Whaling Boat Owners	Use by Owners	Not asked this question	
III. Public Places	Local Restaurants	4512	
	Local Inns & Minshuku	2,945	
	Public Institutions	384	
		7,841	7,841
IV. Total:			34,187

(1) Based on December 1988 to December 1989 distribution of Antarctic minke whale meat from GOJ Antarctic research program

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Table 7 summarizes the kilograms of minke whale used for cultural purposes in Showa 55 (1980). This table presents essentially the same data as Table 5 only the list of 29 separate cultural celebrations is condensed to one entry. Table 8 converts the kilograms presented in Table 7 into minke whales. Based on data from both the GOJ and the Japan Small-type Whaling Association, the study team used 1,200 kilograms per minke whale.

CONCLUSION

Based on the data systematically collected in the household surveys in Oshika, Onagawa, and Ishinomaki, the survey of boat owners, and the surveys and the public places (local restaurants, local inns and *minshuku*, and public schools and hospitals), the total number of minke whales consumed for culturally significant purposes in Showa 55 (1980) was 40 minke whales in Oshika, 30 minke whales in Onagawa, and 146 minke whales in Ishinomaki for a total of 216 minke whales. Table 8 provides a breakdown of the number of minke whales consumed in each of the three locations by category.

End notes

1. Prior to the moratorium taking effect, minke whale meat was also supplied from the pelagic fleet in Antarctica, especially during the off-season (i.e., winter).
2. One boat owner operates two of the nine small-type coastal whaling boats so the number of owners is one less than the number of boats. Also, another of the current boat owners did not have a boat in the study year (1980), so no data were collected for this boat in 1980. Data were collected for 100 percent of the 1980 boat owners (i.e., seven owners representing eight boats).

TABLE 7: Summary of Kilograms of Minke Whale Used for Cultural Purposes Prior to Moratorium (1)

	Cultural Use	Oshika	Onagawa	Ishinomaki	Total
I. Non-Boat Owner Households	Cultural Celebrations	18,628	16,745	97,508	132,880
	Everyday Meals	19,033	19,842	77,111	115,987
	Non-Boat Owner Household Total:	37,661	36,587	174,619	248,867
II. Whaling Boat Owners (excl. Hokkaido)	Use by Owners	1,621	—	—	
	Food for Crewmembers	2,105			
	Whaling Boat Owners Total:	3,726			3,726
III. Public Places	Local Restaurants	4,929			
	Local Inns & Minshuku	1,857			
	Public Institutions	18			
	Public Places Total:	6,804			6,804
IV. Total:		48,191	36,587	174,619	259,397

(1) Based on survey of practices about 10 years ago (1980)

TABLE 8: Summary of Estimated Number of Minke Whales Used for Cultural Purposes Prior to Moratorium (1,2)

	Cultural Use	Oshika	Onagawa	Ishinomaki	Total
I. Non-Boat Owner Households	Cultural Celebrations	16	14	81	111
	Everyday Meals	16	17	64	97
	Non-Boat Owner Household Total:	31	30	146	207
II. Whaling Boat Owners (excl. Hokkaido)	Use by Owners	1	—	—	
	Food for Crewmembers	2	—	—	
	Whaling Boat Owners Total:	3			3
III. Public Places	Local Restaurants	4			
	Local Inns & Minshuku	2			
	Public Institutions	0			
	Public Places Total:	6			6
IV. Total:		40	30	146	216

(1) Based on survey of practices about 10 years ago (1980)
(2) Conversion from kilograms to minke whales is based on 1,200 kilograms per minke whale rounded to nearest whole whale.
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JAPAN'S ANSWERS TO QUESTIONS ON JAPANESE SMALL-TYPE COASTAL WHALING

The Government of Japan
1990

INTRODUCTION

At the last meeting of TECHNICAL COMMITTEE WORKING GROUP ON SOCIO-ECONOMIC IMPLICATIONS AND SMALL-TYPE WHALING held 5 and 6 June 1989 in San Diego, Japanese government announced that it would welcome questions regarding its small-type operations from other members of the group (Chairman's Report of the 41st Meeting, Appendix 5). In October 1989, Japan received a list of 10 questions from the United Kingdom through the Secretariat (ref. RG/HLC/22055). No other questions or comments were received.

WORDS DEFINITION

Following are definitions of terms used in this report.

(1) 'Baird's beaked whale'; is *Berardious bairdii*

(2) 'Pilot whale'; is short finned pilot whale (*Globicephala macrorhyncas*). Two biological stocks of short finned pilot whales are recognized off Japanese waters; one is called southern form and the other is called northern form. Both forms are included in this term.

(3) 'Other whales'; This term includes Risso's dolphin (*Grampus griseus*), false killer whale (Pseudorca crassidens) and killer whale (*Orcinus orca*).

(4) 'Edible meat'; This term include both red meat and blubber.

(5) 'local' or 'Locality'; These terms have been used in discussions of STCW in varied fashion. In our view, defining these terms is an empirical question and to that end we have designed a survey the report of which is provided. In order to bring some regularity into the discussion, we use the term 'local' to mean an identifiable and restricted culture area, where the customary use of whale products in a distinctive food culture, religious and ceremonial practices and economic exchanges can be empirically demonstrated. Such customary-use areas, in relation to present-day whaling towns, are determined by ties of kinship, established trading relationships, relocation of family members or whalers, and the locations of nearby communities where whaling was earlier carried out or from where whalers were traditionally recruited.

Question 5 and 8 therefore reject as arbitrary.

ANSWERS TO THE QUESTION

Japan hereby provide answers to the 10 questions from the United Kingdom with respect to Japan's small-type whaling activities in recent years:

(Question 1)

The number of whales, by species, caught in each of the years 1980 to 1989 inclusive;

(Answer)

These figures are shown in the following table;

Table 1: Number of catch by each whale species

Year	Minke	Baird's beaked	Pilot	Other	Total
1980	379	31	1	2	413
1981	374	39	0	0	413
1982	324	60	85	0	469
1983	290	37	125	1	453
1984	367	38	160	0	565
1985	327	40	62	0	429
1986	311	40	29	2	382
1987	304	40	0	0	344
1988	0	57	128	7	192
1989	0	54	58	14	126

(Notes)

(i) Catch quotas of minke whales had been set according to the IWC and have been zero from 1988 by the IWC moratorium.

(ii) Catch quotas of Baird's beaked whales have been set by Japanese Government from 1983. The quotas were 40 animals a year between 1983 and 1987 seasons and 60 animals a year in 1988 and 1989 seasons.

(iii) Catch quotas of pilot whales have been set by Japanese Government from 1986 (southern form) and from 1989 (northern form). The quotas of northern form and southern form were 50 animals a year respectively. Catch quota of 1987 were carried over to the following year (1988).

(Question 2)

The total production, in tons, of edible meat produced in each year;

(Answer)

These figures are shown in the following table;

Table 2: Production of edible meat by each whale species (metric ton). RM: Red Meat; B: Blubber

Year	Minke		Baird's beaked		Pilot		Other		Total
	RM	B	RM	B	RM	B	RM	B	
1980	447	105	77	0	1	0	4	0	633
1981	508	129	80	0	-	-	-	-	717
1982	379	81	127	12	48	35	-	-	682
1983	359	119	86	73	55	42	1	0	735
1984	551	192	99	83	83	66	-	-	1,073
1985	499	191	106	89	22	17	-	-	925
1986	465	178	109	90	12	8	4	1	868
1987	490	163	108	104	-	-	-	-	865
1988	-	-	200	173	65	50	10	8	506
1989	-	-	217	157	36	23	6	5	444

(Notes)

(i) "-" indicates that there was no catch of whale in the year.

(ii) Weight of edible meat obtained from one Baird's beaked whale shows an increasing trend. The reason is that the portion of blubber processed into oil decreased recently, while a large portion of the blubber had been processed into oil in the early 1980s.

(iii) Weights of edible meat obtained from the annual catch of minke whales has fluctuated. The changes were caused by a difference of body size between whales from off Hokkaido and these from off Ayukawa; whales from off Hokkaido were rather large and these from off Ayukawa were rather small. Therefore, the total production of minke whales was larger when a greater proportion of whales were caught off Hokkaido.

(Question 3)

The total quantity of meat used for human consumption or, conversely, the quantity of edible meat discarded each year;

(Answer)

No edible meat was discarded. Therefore, the amount of production of edible meat (shown in Table 2) is equivalent to that of meat used for human consumption.

(Question 4)

Of the total quantity of meat used for human consumption what proportion in average over the ten years

(a) was used *directly* by the immediate family of these involved in the whaling activity and which therefore did not involve any monetary transaction;

(b) was *gifted* to the wider family and community;

(c) was exchanged for money or a similar medium ie. entered into commercial exchange;

(Answer)

(a) These figures are shown in the following tables.

Table 3: Gifting and other non-commercial distribution of minke whale prior to moratorium: used by the immediate family (S.R. Braund & Associates, 1990)

	Oshika (Ayukawa)	Hokkaido (Abashiri)
Use by Owners	1,621kg	140kg
Food for Crewmembers	2,105kg	5,200kg
Crew Distributions	8,484kg	1,670kg
Total	12,210kg	7,010kg

(b) These figures are shown in the following tables.

Table 4: Gifting and other non-commercial distribution of minke whale prior to moratorium: used by the wider family (S.R. Braund & Associates, 1990)

	Oshika	Onagawa	Ishinomaki	Hokkaido
Gifting by Owners	11,040kg			7,330kg
Household Gifting	17,759kg	17,443kg	52,713kg	n/a
Total	28,799kg	17,443kg	52,713kg	7,330kg

n/a= Not available

(c) This question is difficult to answer because it is difficult to obtain information on the amount of minke that is purchased and then gifted (or used for other culturally significant events).

(Question 5)

What proportion of (c) of (Question 4) above

(a) was sold locally direct to the consumer *without* involving an intermediary (eg. a shop or market);

(b) was sold locally through a shop or market;

(c) was sold first to an intermediary (ie. wholesaler) who sold on the product for *final* sale in an outlet beyond the immediate locally (ie. beyond 25 kilometers), from the point of processing of the catch;

(Answer)

This question is difficult to answer because we do not have any survey data regarding this matter at this time.

(Question 6)

In relation to (c) of Question 4, what was the value of the commercial exchange in each of the years 1980 to 1989;

(Answer)

These figures are shown in the following table;

Table 5: The amount of wholesale prices (Unit: ¥1,000)

Year	wholesale prices
1980	671,831
1981	703,843
1982	843,969
1983	928,806
1984	1,033,761
1985	1,039,077
1986	1,245,611
1987	1,317,622
1988	477,687
1989	464,320

(Note)

The wholesale prices are sum of that of minke whale, Baird's beaked whale, pilot whale and other whale.

(Question 7)

What, if any, was the potential commercial value of any discarded products (ie. non-edible elements and edible meat not in the event used for human consumption) in each of the years 1980 to 1989;

(Answer)

There were no edible meat discarded in each year as described in the answer to the question 3. Regarding non-edible elements, bones were brought into factories in charge of process bones of livestock and cattle. Bones have no value even if they are circulated in markets.

(Question 8)

What are the estimate of

(a) the annual per capita consumption of whale meat of the *immediate* family of these involved in the whaling activity;

(b) the annual per caput consumption of *gifted* whale meat to the wider family and local community;

(c) the consumption of whalemeat in the local community (ie. the total of that covered at points (a) and (b) of Question 4, and (a) and (b) of Question 5 above) expressed as a proportion of the total intake of all types of meat and fish in the local community;

(Answer)

This question is difficult to answer because data are lacking on family members, meat and fish consumption. The answer will be provided when available.

(Question 9)

For what period of time can whale meat remain in suitable condition in cold storage for the purpose of

(a) gifting;

(b) commercial exchange;

(Answer)

Objects of commercial exchanges and non-commercial exchanges (gifting) of red meat, especially minke whale red meat, were non-frozen meat (chilled meat). Chilled meat remains in a suitable condition for almost one week. However, consumers can store the meat for about a year if they freeze the meat in their home refrigerator.

(Notes)

The case of processed meat are excluded in this answer because the question is understood to refer only to the cold storage of meat.

(Question 10)

What proportion of the year is spent by small-type whalers on non-whaling economic activities and what are these activities.

(Answer)

(i) Background

The amount of time spent by small-type whalers (whaling vessel crews and flensing staffs) on non-whaling activities after 1988 is totally different from that before 1987 because catch quota of minke whale became zero from 1988 season onward. Initial number of 9 STCW vessels operated before 1987. In 1988, however, STCW boat owners sought a way to survive after the moratorium on catching minke whale. They agreed a total of 6 vessels should actually operate (main target species were Baird's beaked and pilot whales) and owners of these 6 vessels should support the owners of other 3 vessels. In 1989, they further reached the conclusion that total of only 4 vessels should actually operate, and they should support other boat owners.

(ii) Whaling vessel crews

Crews of 9 STCW vessels were employed for 12 months a year (both fishing season and off season) until catch quota of minke whale become zero in 1988.

After the moratorium, crews of the vessels which actually operated were employed for 6 months of fishing season a year, and they spent off season (a) living on a unemployment insurance, (b) living on lower wage from their boat owners without any jobs or (c) working for salmon farming in their community. In the case of (b) described above, the reason why boat owners paid lower salary (60% of that in fishing season) was to keep competent crews for the next year and those crews promised to work for the vessels in the next year.

Basically, almost all of crews of the vessels which were not used for actual operations in 1988 and 1989 were dismissed. Boat owners tried to recommend a new job for those who were dismissed or tried to pay small salary for those who could not find any job.

(iii) Flensing staffs

Chief flensors and directors of factories were employed for full months a year because they had good skills needed for flensing, but during off season their wages were reduced to 80% of that in fishing season.

Part time flensors were not employed throughout the year; they were employed only when whales were landed.

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AN ADDITIONAL INFORMATION OF 'JAPAN'S ANSWERS TO QUESTION ON JAPANESE SMALL-TYPE COASTAL WHALING'

The attached sheet contains an additional information of an answer to the question 8 mentioned in the report TC/42/SEST9.

Table A does not indicate *quantity* of meat gifted, but the *frequency* of giving gifts. The cultural value of gifting is a function not of the quantity of meat, but (1) the *symbolic value* of the gift, and (2) the *extent of community involvement* in the gift exchange.

Table B presents the method of acquiring whale meat by non-whaling households.

Both Table A and Table B are based on the household surveys conducted in Oshika, Onagawa and Ishinomaki in 1990.

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Table A: Percent of Non-whaling Households that Gifted Minke Whale Meat Prior to Moratorium (1)

Occasion for Gift	Oshika	Onagawa	Ishinomaki
A gift of Chugen	51.6%	9.8%	0.8%
A gift of Seibo	63.9%	14.1%	4.2%
Other formal gift	65.7%	18.4%	10.3%
A gift when visiting other people	79.1%	32.4%	21.6%
A gift from a vacation trip	31.9%	12.2%	8.7%
Osusowake (to share with neighbors)	56.2%	29.6%	28.9%
Gift for a family member away from home	85.3%	25.3%	0.3%

(1) Based on survey of practices about 10 years ago (1980)

Table B: Method of Acquiring Whale Meat by non-Whaling Households (in percent) (1)

Method of Acquiring Whale Meat	Oshika	Onagawa	Ishinomaki
Gifted by someone	59.5%	60.1%	49.6%
Given at the work place	41.8%	20.7%	6.9%
Purchased at local fish stores	76.2%	81.8%	76.5%
Purchased at local supermarkets	37.8%	57.1%	61.4%
Purchased from a peddler	69.5%	24.6%	33.4%
Purchased at stores in other towns	41.9%	34.3%	23.2%
Purchased directly from producers in Ayukawa	74.8%	26.3%	14.2%
Purchased from friends (for money)	52.6%	25.7%	13.9%

(1) Based on survey of practices about 10 years ago (1980)

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