Rural Depopulation and its Impact on the Structure and Organization of Nearshore Fisheries in Japan: A Case Study of Fishing Communities in Hirado, Kyushu

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The establishment and evolution of a system of territorial management and 'ownership' of Japanese nearshore sea areas has been well documented (e.g. Kalland, 1981; Ruddle, 1984). The rights to fish such areas are administered by local Fisheries Co-operative Associations (FCAs), comprising elected members from the nearby fishing community. This 'community' may include fishermen living in a single town or village or, perhaps more commonly, those living in a number of small fishing villages stretched out along a clearly defined geographical feature such as a bay or headland. Drawing upon knowledge of local sea conditions, acquired over many centuries, it is one of the functions of FCAs to regulate fishing activity to ensure that sustainability of marine resources within their jurisdictions is maintained. It has been suggested that this system in Japan, of essentially 'village', or community based tenurial control of nearshore sea areas be used as a model for marine resource management in other parts of Asia and Oceania. However, the system as it exists in Japan today faces one the greatest challenges ever to its ability to continue functioning. The rural exodus of young people in the 1960s left many fishery operators without a successor in place to 'take over' operations when 'the time was right'. Whether 'right' or not, the time has now come when fishery operators are being forced to give up because of old age. The decline in numbers of fishery operators means that changes in the spatial and possibly functional structure of FCAs will have to be made. This in turn may have a negative impact on the future sustainability of aquatic resource management in Japanese nearshore waters.

Key Words : Japanese fishing communities, rural depopulation

Introduction

This paper presents the preliminary findings of a study on how marine resource management in the nearshore fisheries of Japan may be affected by a significant and sudden decline in the number of fishery operators in the near future. That such a population decline will occur can be stated with almost complete certainty, based on the post 1945 demographic record at national, regional and, especially, local levels.

The 'preliminary' nature of these findings encompasses, essentially, a survey of recent demographic trends in a group of fishing communities located on the island of Hirado, Nagasaki prefecture, in Kyushu, Japan. This survey is backed by comments received during interviews with representatives from Fisheries Co-operative Associations (FCAs) in Hirado, and with local government officials responsible for fisheries management in the area. The results of an attitudinal survey conducted by the Hirado FCAs among their members in August and September 1997 are also taken into account. Further investigation will be required to complete the study, focussing on in-depth interviews with individual family groups to determine their strategies for succession, if, indeed, that remains a primary goal. This paper will suggest some alternatives that may be under consideration by certain family groups, the primary stake-holding unit of the FCAs, but recognises that eliciting meaningful

responses at this critical, somewhat delicate stage, may be difficult.

Fishery operatives and rural depopulation

The evolution of the system determining rights to manage, operate in, and market the produce of coastal (nearshore) waters off Japan has been thoroughly researched and documented (Kalland, 1981; Ruddle, 1989; Barrett and Okudaira,1995). Despite the difficulties and vicissitudes that have faced fishing communities since the Edo period (1603-1868), including, at various times, harsh feudal dominion by bone-fide lords and 'semi-feudal bondage' under de-facto merchant aggrandizement, the basic unit of fishery operations has remained the same – the fishery operative and his family. Countless fishery operatives today claim direct descent from fishermen who operated not just in the Edo period, but on the same waters that they themselves now fish. Knowledge of not only how to fish, but what to fish, where and when, is a matter passed down from father to son, generation to generation. In this respect the structure, functions and responsibilities of the family group involved in fishing activities are the same as in any other family group engaged in the primary sector in rural Japan. It has been suggested, however, that the *status* of fishing communities in the Edo period was considered to be well below that of neighbours, further inland, belonging to farming communities (Ruddle, 1984,), and that the perception of fishermen as "smelly" and "uncouth" persists today (Kalland, 1981). This may be an important factor when considering why young men do not wish to stay on as members of the modern fishing community, and why potential young brides may not be attracted to enter.

Post 1945 reorganization of fisheries management, and the establishment of a nationwide system of FCAs controlling operations in local territorial waters has led to a more equable share of the profits derived from littoral seas between fishery operators. FCAs are run on a democratic basis, and constitutional structures ensure leadership cannot be vested in any one particular operator for an undue length of time (Ruddle, 1989). A major criticism of the co-operative structure on the other hand is that FCAs tend to regard themselves as exclusive 'clubs', denying fishing rights in waters under their jurisdiction to all but those operators who can claim hereditary status in the community (Barrett and Okudaira, 1995). While this is not necessarily the case in all FCAs, entry is tightly controlled and never an easy process. The loss of potential successors to fishing operations due to out-migration of rural youth poses a serious threat, therefore, to the future continuation of many FCAs. Already, as an interim measure, there is a recognised need to consolidate smaller FCAs into larger entities (see below). There also seems to be widespread acceptance of the fact that when many of the current generation of fishery operators decide to retire they will, in effect, be giving up their family's hereditary right to fish.

Large scale rural depopulation – the 'Rural Exodus', or "great movement of a nation" (Imai, 1968; 17) – is also a phenomenon in Japan associated with the post-war era. Traditionally, the responsibilities of headship of a household (whether involved in fishing, farming, or otherwise) were passed down to the eldest son who would, by the time of succession, hopefully, have married the daughter of a household from a neighbouring community. All other sons and daughters, at the discretion of the household heads, were free to leave their homes and villages in the knowledge that their departure would have no detrimental impact on the continuance of their own household, nor on the demographic viability of their village. Post-war constitutional reform removed the legal right of household heads to determine the actions of adult offspring (notably the decisions who to marry and where to live), but there is no evidence that this alone was the cause of subsequent rural exodus. Instead, industrial revitalization beginning in the early 1950s, the prospects of well paid work in the newly burgeoning cities, and the attractions of achieving a lifestyle simply not possible in the home villages, all encouraged young people, including eldest sons and daughters, to leave the rural area. In fact, most young people seem to have left with the blessings of their parents, although, undoubtedly, many parents assumed that one-day a successor would return to take over family and household operations.

Actual numbers of young people involved in the rural exodus are hard to estimate because of the great diversity of destinations migrants went to and the difficulty of collecting statistics from all of these. Suffice to note, however, that the exodus involved many tens of millions, having started in the early to mid 1950s and continuing throughout the 'income doubling' decade of the 1960s. The exodus affected all parts of rural Japan, although initially it seemed stronger in the western region before moving wave-like to regions in the north and east. The peak year for migration appears to have been 1970, when 1.26 million people are recorded as moving residence from 'rural' prefectures to the major metropolitan centres of Tokyo, Osaka, and Nagoya (Annual Reports of Internal Migration, Bureau

of Statistics, Office of the Prime Minister). Then, following the first 'oil crisis', inter-regional migrations dropped sharply and the exodus seemed to have come to an end. Net out-flow of migrants from many 'rural' prefectures has continued since then, but at levels far below those of the exodus years. The main point, often ignored, is that the exodus removed virtually a whole generation of young people from rural villages and that, to date, few of these have returned. As a result, demographic viability has been shattered in many of the small communities affected, leading to problems of ageing now, and the risk of total demise in the near future (Irving, 1996; 1997). Within the areas most severely affected are remote fishing communities.

The sheer magnitude and impact of the exodus is best viewed from the perspective of the rural areas affected. In the late 1960s concerns expressed by local government (municipality) leaders in rural areas reached the attention of national government and, in 1970, the Law for Special Measures for the Alleviation of Problems in Areas of Severe Rural Depopulation (*Kaso-ho*) was put into effect (see Irving, 1996). Criteria for the recognition of such areas were established, and funds allocated for the improvement of various rural area infrastructures. Despite some modifications the Law remains in effect today, and provides a useful device for monitoring changes in those places most severely affected by depopulation. About one-third of all municipalities throughout Japan were designated under the Law, many of which had been further designated for special attention because they were, for example, 'remote areas', 'located in regions of heavy snowfall', 'mountain areas', or included 'offshore island communities' (Kokudo-cho, 1975). The latter designation clearly targeted fishing villages or, at least, municipalities with fishing communities within their jurisdiction. Since 1970, the total number of *kaso* (severely depopulating) municipalities has actually increased, and, for the great majority, the state of imbalanced population structures has not improved. Rapid ageing of populations is currently the major concern, and it is not at all unusual to find municipalities with ratios of people aged 65 and over exceeding 30% of total population (Kokudo-cho, 1996).

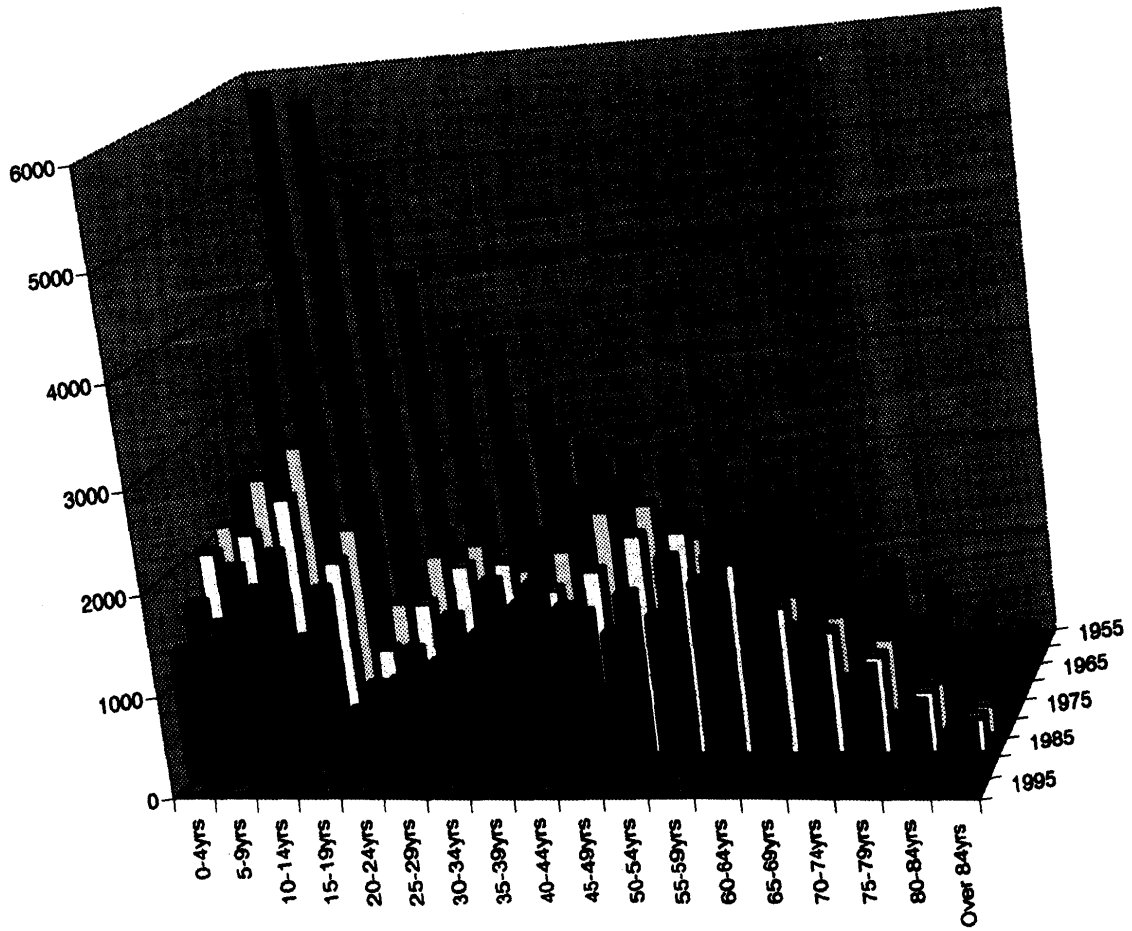
Unfortunately, the monitoring of population change at the municipal level can only provide, at best, an unfocussed view of what is happening at the individual community level or at the level of jurisdiction enjoyed by, for example, FCAs. In addition, aggregated municipal data include not only those working in the secondary and tertiary sectors but also, invariably, different activities such as farming, forestry, and fishing within the primary sector itself. In order to understand how the rural exodus affected, and is affecting, fishing communities specifically, it is necessary to study spatial variations in population dynamics within the confines of a particular municipality. Hirado-shi in Nagasaki Prefecture is selected for this purpose.

Hirado-shi

Hirado-shi (i.e. Hirado City) is one of the 1,044 municipalities in Japan originally designated as *kaso chitai*, or areas suffering severe rural depopulation. City status was awarded the municipality in January 1955, following the 1953 Law for the Merger of Municipalities, when seven 'former municipalities', together constituting the whole of Hirado Island, were amalgamated. Hirado is currently one of only 39 "Cities" in Japan to be simultaneously designated as *kaso chitai*, although rates of population decline since 1960 place Hirado on a par with many "Town" and "Village" *kaso* municipalities around the country (Kokudo-cho, 1996).

Hirado is a fairly large island, just under 170 km^2, situated a short distance from the northwestern shores of Kyushu in Nagasaki prefecture. In 1977 the island was connected to the Kyushu mainland by a new bridge, greatly improving accessibility by road. Hirado is not connected to the mainland by rail, however, and only a limited number of commercial ferry services are available. Although dominated by the former castle town and port of Hirado, the island is occupied by more than one hundred smaller settlements, many of which are fishing communities, or combine fishing to a greater or lesser degree with farming and forestry. Fishing rights around the island are administered by a total of nine FCAs. The island is best known for its trading and other maritime links with foreign powers, particularly the Dutch and English, during the formative years of the Edo period. William Adams, the model for Clavell's Jim Blackthorne in the novel "Shogun" was particularly active here, and was buried on a promontory overlooking Hirado port. Christian presence on the island remains very strong, despite the persecutions of the later Tokugawa shoguns. In sum, Hirado has considerable potential for tourist development, but access to the island remains comparatively difficult.

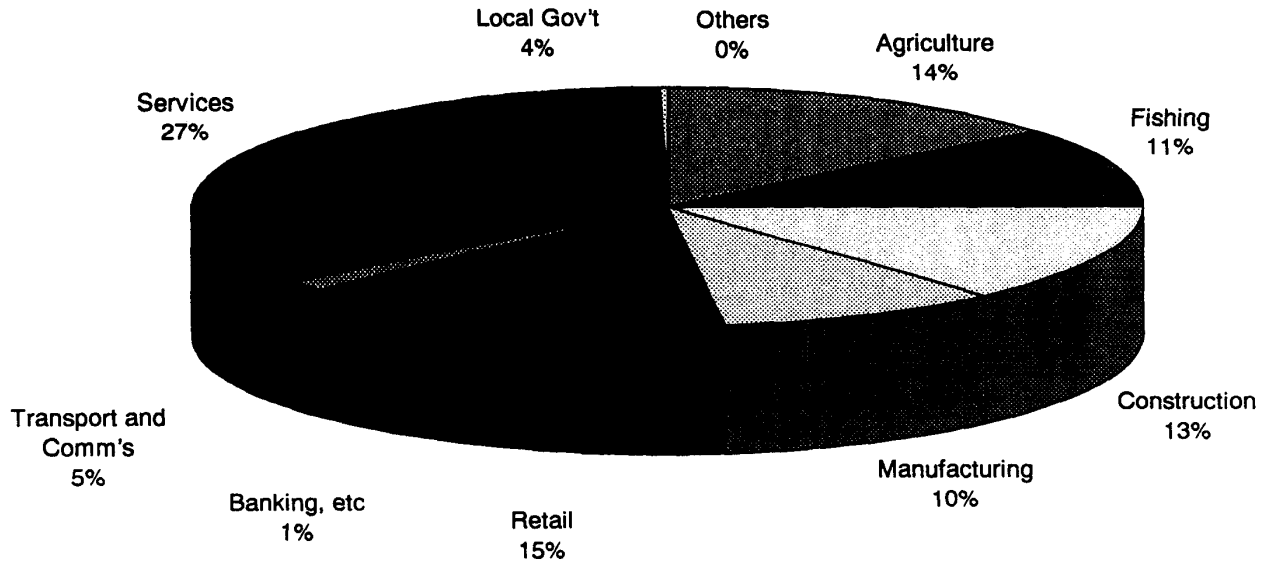
Figure1. The Changing Population and Age Structure of Hirado-shi, 1955-1997



A feeling of isolation among the island inhabitants, and the lack of lucrative 'modern' alternative income sources combined to encourage young people to leave Hirado during the years of rural exodus. The scale and impact of this movement on Hirado's population structure is amply demonstrated in Figure 1. The preponderance of youth evident in 1955 (many of who had been born in the immediate post-war baby boom) had apparently melted away by 1975, and subsequent years have witnessed further erosion of the under-25 population cohort. By 1995 the 20-24 age group was the smallest of all five-year groups under the age of 80, and there were almost as many 60-64 year olds as there were in the 10-14 age group. In the same year, the proportion of aged people (65 years and older) was 22.3% of total population. Not only has total population declined, from 43,302 in 1955 to 25,240 in 1995, but also the process has clearly been age selective so that the population cannot, or is not prepared to, attempt to sustain even zero-growth levels. While the numbers of out-migrants have consistently exceeded those of in-migrants (e.g. 1,203 compared to 910 in 1995), 1993 marked the watershed when the number of deaths on Hirado exceeded, for the first time, the number of births. The size of this 'natural loss' has been increasing ever since (Hirado-shi, 1997).

The population trends shown in Figure 1 are based on figures for the whole of Hirado-shi. To what extent do they reflect the changes occurring in the fishing communities on the island? First, it must be noted that as many as 46.5 percent of the total population of the municipality live in the old castle-town of Hirado, the main urban and administrative centre of the island. Moreover, this proportion has been steadily increasing over the years, from 40.6 percent in 1955, indicating that rates of depopulation are more severe outside the limits of the old town. (Of course, the old town has been losing population too, but at a somewhat slower pace than the rest of the island.) Second, the present employment structure of Hirado-shi shows that only 11 percent of the working population are engaged in fisheries (Figure 2), and that a further 14 percent are engaged in agriculture. Although the 'old town' has its own FCA, the third largest on the island in terms of numbers of operatives, it is clear that most individuals engaged in primary activities live elsewhere on the island. It is this group, here as well as elsewhere in Japan, which is susceptible to the highest rates of depopulation.

Figure2. The Employment Structure of Hirado, 1995

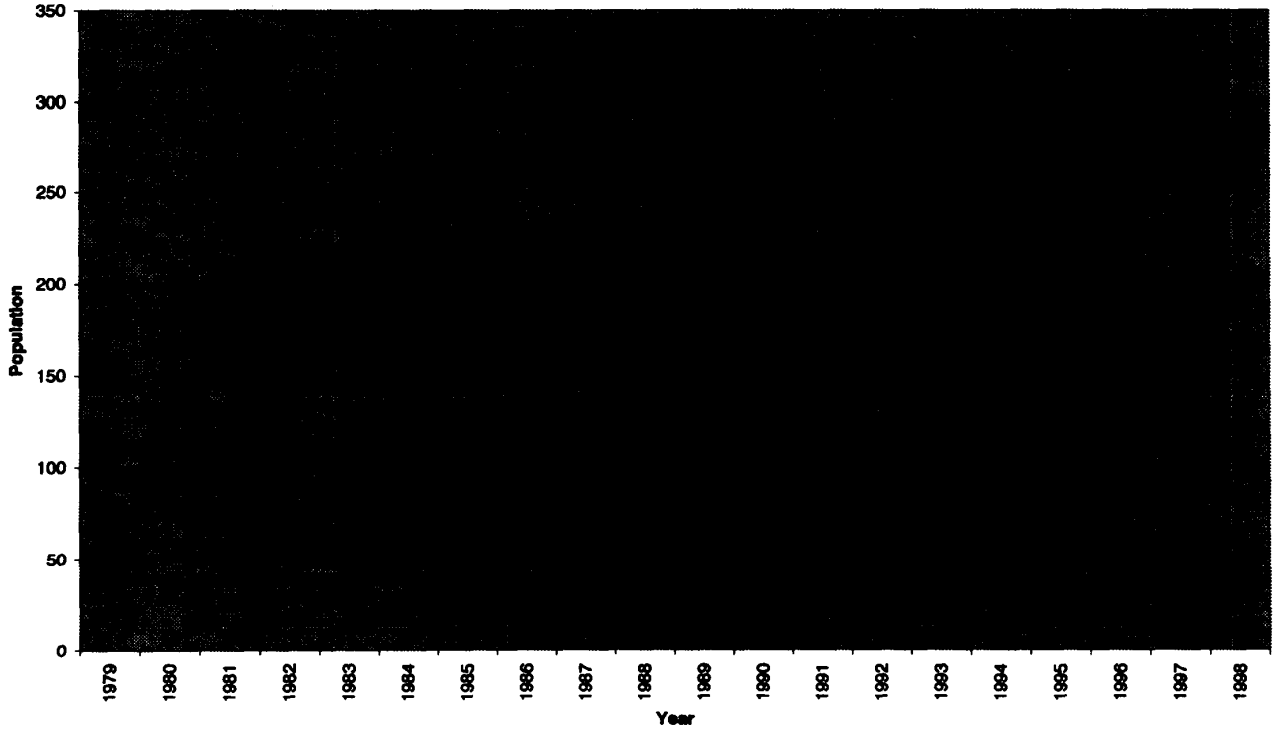


Obtaining detailed population breakdowns for community levels below that of the municipality is no easy task in Japan. Published data from the quinquennial Population Census, as well as that from the Census of Fisheries (also conducted every five years) are of only limited, superficial value. Fortunately, an alternative data source exists in the form of a continuous population register known as the Jumin-hyo, which may be consulted at the City Office. Access to this Register was, in the past, relatively straightforward. Now, however, entries are stored on computer in such a way that the casual inquirer *may* be able to access what is deemed sensitive or confidential information. Whilst in theory all information on the Register is available for public scrutiny, including useful data on the migration histories of individuals, access is invariably denied. Research seeking basic population data for individual village communities is therefore dependent on the willingness of city officials to extract required information for you. At Hirado city office the officials were both understanding, and fully co-operative. Yearly population totals extending back to 1979 were made available for a total of eleven communities (each comprising about 65-70 households), which together make up the area of jurisdiction of two of the nine FCAs in Hirado: Shijiki and Usuka-ura.

Shijiki and Usuka-ura

Shijiki comprises ten village communities located around a bay and adjoining peninsula at the southernmost tip of Hirado Island. It is the largest of the FCAs in Hirado in terms of size of membership (257 fishery operators in 1993), although it is furthest away from the main port and 'old town' of Hirado. Usuka-ura, on the other hand, is a single village community with just under 200 households, and an FCA membership of 43 operators. It is in the north of the island, linked by road across the narrow neck of a peninsula, to Hirado 'old town', about ten minutes away by car.

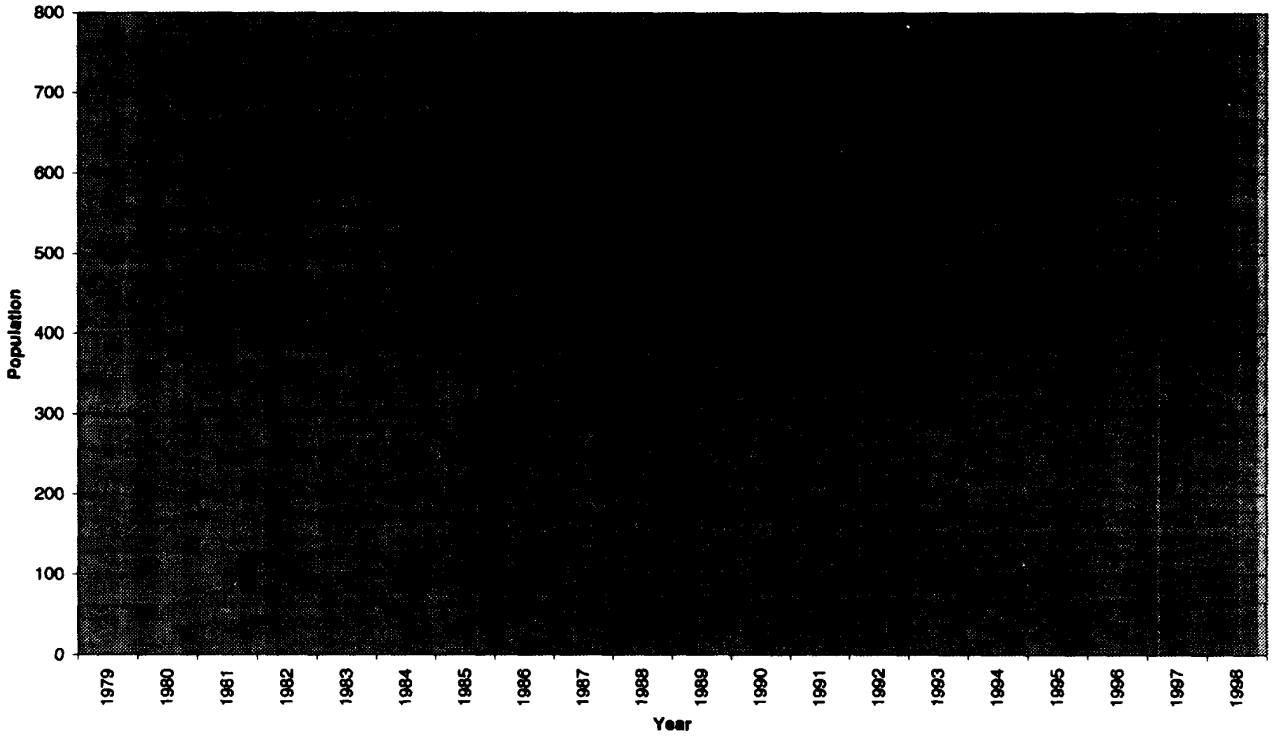
Figure3a. Population Change in Shijiki-ura, 1979-1998



Membership of both FCAs has been falling in recent years, having stood at 311 and 97 respectively in 1978 (Fisheries Census). The pace of decline has been somewhat less dramatic in Shijiki than Usuka-ura, and this is generally reflected in patterns of population change at the village community level. Typical of the communities in Shijiki is Shijiki-ura, where the FCA offices are located. 88 households in the village housed 274 people in 1998, about 20 percent less than the population level of 1979 (Figure 3a). Despite small annual fluctuations, the pace of decline has been fairly constant throughout this period, although it is not severe enough to be considered to be of *kaso* proportions. Indeed, another of the communities in Shijiki has actually witnessed an increase in population in recent years. The number of people in Miyanoura was at a post-war low of 454 in 1984, but has since increased by 49 (just over 10 percent) to reach 493 in 1998. What makes this situation surprising is that Miyanoura occupies the most southerly, and thus most remote, tip of the island. By contrast, population decline in the village of Usuka-ura has been much more dramatic and, in this case, *is* of *kaso* proportions (Figure 3b). 45 percent of the 1979 population has subsequently left the village, to leave only 431 people in 1998, living in 197 households. The pace of decline has been fairly constant, and currently shows no signs of abating. Significantly, the population data made available for these village communities refer to the period *after* the rural exodus appears to have come to an end.

In *agricultural* regions throughout most of Japan it tends to be that villages closest to urban centres have been best able to withstand the pressures of depopulation whilst those furthest away are more likely to face the threat of complete village abandonment (Irving, 1997). In part this is due to the generally more favourable farm conditions in plain areas near the cities, in contrast to the mountain environments further away. It is also, and perhaps more importantly, a function of accessibility to urban areas where off-farm employment may be secured and the conveniences of city life may

Figure3b. Population Change in Usuka-ura, 1979-1998



be enjoyed. In Hirado, in the case of Shijiki and Usuka-ura, the reverse seems to be true. In terms of accessibility there is no doubt that Shijiki is considerably more remote from Hirado 'old town', and the larger urban centres beyond, than is Usuka-ura. The reason why population levels in Shijiki are declining at a much slower pace than Usuka-ura appears to be based largely on economic factors, therefore. In fact, the current chairmen of the two FCAs suggested during interview that, very simply, Shijiki has access to the richest, most productive fishing grounds off the Island, offering year-round employment for its fishermen. Furthermore, the villagers of Miyanoura, at the southernmost tip of the Island, have best access to these grounds and probably the best accumulated knowledge of when and where to fish. It was also reported that the Miyanoura villagers have the highest rate of crewmembers that are eldest sons, or inheritors (*atotsugi*). The situation was very different in Usuka-ura, where almost all those actively engaged in fishing were elderly.

Further evidence of the relative strength of Shijiki in terms of continuing viability as an essentially 'fishing community' is the fact that the ratio of fishery operators to total households remains high, at 39 percent. All but one of the fishery operators are classed as private individuals, implying family based operations with strong prospects of future continuity. The exception is a local co-operative venture (acquiring 'membership' to the FCA in its own right), and no external commercial operators are present. Moreover, 87 percent of operators classify themselves as either full-time fishermen or as "mostly engaged in fisheries". In Usuka-ura, on the other hand, this ratio is only 63 percent. The ratio of fishery operators to total households is 22 percent, and out of a total 43 operators, five are co-operative ventures (all formed between 1988 and 1993), and three are external commercial operators, two of which entered after 1988 (Fisheries Census, 1993). Here, it seems, the FCA can no longer rely on individual family based operators to lead the way into 21st century fishery operations.

Looking ahead

Hirado fisheries are best known for their capture of flying fish, which are dried and then sold to be grilled in local restaurants. The best waters for flying fish are those to the north of the Island, and the catch is one of the staples for the Usuka-ura fishery. The value is relatively low, however, reflecting, perhaps, low national level demand for this product. Waters off the southern shores of the Island are blessed with a wider variety of species, among which Taiwan Gazami has become extremely popular in recent years. In terms of numbers landed, this catch dominated all others in 1995 and 1996 (Hirado-shi Fisheries Report, 1997). Perhaps, in future, changing tastes in the national market will see a decline in popularity of this species and, with that, a change in the fortunes of the fishermen of Miyanoura. Yet despite the recent demographic successes of Miyanoura, and despite the vagaries of the fish market, the underlying trend in the Hirado fishing industry is population decline accompanied by decline in the numbers of fishery operators. In Shijiki this decline presents cause for concern although, as yet, there seems to be no real threat to the future vitality of the industry and its supportive community. In the case of Usuka-ura the numbers of individual fishery operatives, and of the people in the surrounding community, have fallen so dramatically in recent years that there are concerns for future demographic viability.

The present situation and concerns of Hirado fishery operators were expressed collectively in the results of a survey undertaken in all nine FCAs in August-September 1997. Response rate was 47.69 percent. Of the respondents, 23 percent were aged 50-59 years, 29 percent aged 60-69 years, 14 percent aged 70-79 years, and one percent aged 80 or over. These figures are more or less compatible with the results of the 1993 Fisheries Census and highlight the fact that the population engaged in fisheries is ageing. In response to the question "Do you have an *atotsugi* (successor)?" 36 percent answered in the negative (implying either that there was no male heir, or that all sons had left home to establish themselves elsewhere), and a further 25 percent answered "yes, but the *atotsugi* is engaged in another occupation". A mere 20 percent of these mostly elderly fishery operators answered "yes, and he fishes with me". 12 percent suggested "other" alternatives, and 7 percent were 'unclear' (Hirado Fisheries Report, 1997). These responses alone should cast doubt on the future viability of the existing fisheries management structure in Hirado, but they are reinforced by the response to a further question: "How do you view the future of your own fishing operations?" Although a majority 52 percent "wish to continue as present" or even "increase the scale of operation", 17 percent stated quite bluntly that, as operators, they will "quit fishing". Others may be heading the same way. A further 18 percent responded "don't know" and 13 percent were "unclear" or "other".

The declining number of fishery operatives in Hirado, the ageing of the population engaged in

fisheries, and major uncertainties regarding succession have together been recognised as the major area of concern facing the fisheries industry on the Island (Hirado Fisheries Report, 1997, p7). The primary and most immediate response to this, according to the Fisheries Report (1997), must be to consolidate the FCA organizational structure by amalgamating two or more of the existing nine FCAs into a single co-operative entity in order to "strengthen the economic base" and "make more efficient use of resources" (ibid.). Details on how this might be achieved, and which of the existing FCAs might be affected have yet to be worked out. What is clear, however, is that rural depopulation, which began in the 1950s and continues today in many places, has only now reached the point where its' impact is felt on the continued existence of long-standing, traditional community structures. That these will have to change, maybe even disappear altogether, is now beyond doubt. Due to insufficient awareness of the potential seriousness of the problem over the last 20 years or so, the opportunity to make a carefully planned appraisal of alternative solutions has been lost. Hirado fishermen are now faced with a last ditch attempt to save not only their own livelihoods, but also the future integrity of the seas which provide that livelihood.

Future coastal and fisheries management

In the case of Shijiki, and the village of Miyanoura in particular, it seems that despite all the rigours and hardships of fishing as a means to make a living the economic rewards are sufficient to encourage existing fishermen to stay in operation, and successors to learn the business and take over when the time is right. Elsewhere on Hirado Island, particularly in places such as Usuka-ura, the rewards are deemed insufficient and existing operators and successors alike are leaving the industry. What impact will this have on the future of coastal and fisheries management in Hirado and, in particular, what will be the impact on marine resources?

Answers to these questions must, at this stage, remain speculative. Time will demonstrate how the FCAs attempt to resolve their problems, and further research involving the attitudes, desires and intentions of all stakeholders is required. On the other hand, there are sufficient indications of the way things are heading to offer some reasoned postulations. First is the issue of amalgamation of two or more of the existing FCAs. At first glance, the prospect of rationalization by making more efficient use of increasingly scarce (human) resources seems practical and appealing. Objections will undoubtedly come from Shijiki stake-holders if there is any attempt to force a share of their rich fishing grounds with others, particularly if there is any prospect of economic returns being diminished for, say, fishery operators in Miyanoura. They may argue that rewards will be lowered to such an extent that out-migration becomes the desirable option and that amalgamation will only serve to make a difficult situation worse rather than improve things. The methods that served the 1953 Law for the Merger of Municipalities, that is the amalgamation of financially weak municipalities with financially strong ones, are unlikely to be put into effect here. That only leaves the option of merging 'weaker' FCAs together into a potentially 'stronger' one. A 'spin-off' from all this may be growing political isolation for the Shijiki FCA within the regional representative framework.

Potential benefits derived from the amalgamation of weaker FCAs must also be questioned. The only possible advantage, in fact, is that more efficient use of resources (including the sharing of port, marketing, and other supportive facilities) will lead to greater financial returns to the operators so that successors will be encouraged to return. That successors might return if conditions are right seems to have been demonstrated in Miyanoura, but that was some 15 years ago. The longer successors stay out of the fishing industry the harder it will be for them to return. There is no guarantee, therefore, that amalgamation will produce the desired results. Moreover, there are certain disadvantages to be considered. Members of neighbouring FCAs may, for example, harbour mildly hostile feelings towards each other as a result of past boundary disputes. Fishing rights, which in the past had been jealously guarded, are now thrown open to those 'outsiders from beyond the headland'. Will there be a willingness to share knowledge about the unique characteristics of each former FCA's sea territory and, most importantly, will mechanisms be put in place to ensure marine resources are harvested in a sustainable manner? In Hirado, most fishermen apparently share these doubts about the appropriateness of amalgamating FCAs. According to the 1997 survey, only 22 percent voiced clear support for this action whereas 39 percent were strongly against (Hirado Fisheries Report, 1997).

A trend apparent in recent years has been for a growing number of cooperative fishing units within existing FCAs, and also the appearance of 'outside commercial fishery operators' in some of the weaker FCAs. The former appears to be a response to the ageing of fishery operators, whereby two or more families have decided to pool resources and profits since they feel unable to carry on individually. This does have the

benefit of ensuring the most experienced fishermen (and women) stay on as active stakeholders and members of the FCA, but is unlikely to have any positive impact on overall profitability. The latter appears to be a response to the decline in numbers of fishery operators. Allowing 'outside commercial operators' to become members of the FCA seems a 'last resort' measure to maintain the viability of weaker FCAs, although it may have the benefit of bringing needed capital and special expertise to the Association. Such ventures may bring with them new market opportunities, such as fishing cruises for tourists, for example. The risk, on the other hand, is that outsiders lack full knowledge of the seas in which they now operate and sustainability may be threatened.

Finally, questions must be asked about the role absentee 'successors' (*atotsugi*) may play in future. The majority of family based fishery operators in Hirado do not have an eldest son currently prepared to engage in fishing. Normally, whether eldest son or otherwise, individuals have to demonstrate commitment to the industry by fishing continuously over a period of years before they can apply to membership of the FCA (Ruddle, 1989, p174). Since this is, quite simply, not happening, the looming crisis appears to centre on what will happen when the present generation of elderly fishermen and women retires or dies? It is not unreasonable to assume, however, that this is a topic which has already been identified and discussed within the confines of each family unit. In many households it must already have been accepted, however reluctantly, that no-one will succeed to the fishing business and that membership of the FCA will expire within a few years, no matter how many generations of the family have fished local waters in years gone by. But, not only does the household head lack a successor, the eldest son lacks an inheritance. If the means to continue fishing operations cannot be passed on, will the family be pressured into 'selling up' in order to fulfil traditional obligations to pass household assets to the next generation? In this respect, the item of greatest potential value is not the boat or the gear, but the *right* to fish. In areas where the coastline has been noted by developers as having potential value for residential, business or industrial construction on reclaimed land, enormous payments have been made to local fishermen, via the FCAs, for acquisition of their rights to fish. How many fishery operators, in full knowledge that they are about to give up their rights anyway, will feel pressured at least to attempt to liquidate their assets in this way? If the numbers are large, it is this which surely poses the greatest threat to preservation of the natural marine environment.

The nearshore fishing industry in Hirado faces a crisis, the resolution of which can only be a few years away. Indicators demonstrating the current state of rural depopulation throughout the rest of Japan suggest that Hirado is by no means an isolated case, and that fishing communities facing this crisis are widespread. Clearly more research is required, emphasing data collected at the community rather than the municipal level. Ideally, research should focus on the attitudes currently held by individual fishery operators and their families to find their views on the future of nearshore fishery operations at a time when the industry faces the greatest challenge ever in its long history. Such work may not prove easy, but must nevertheless be undertaken soon.

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