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## Expert Meeting on the Human Side of Fisheries Adjustment

### ADDRESSING THE IMPLICATIONS OF AN AGEING FISHERIES LABOUR FORCE IN JAPAN

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*This paper has been prepared by Mr. Nobuyuki Yagi of the Fisheries Agency, Tokyo, Japan.*

*It is submitted for discussion under Session 2 of the Programme.*

For further information, please contact:

Anthony COX (Email: [anthony.cox@oecd.org](mailto:anthony.cox@oecd.org))

Carl-Christian SCHMIDT (Email: [carl-christian.schmidt@oecd.org](mailto:carl-christian.schmidt@oecd.org))

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## **ADDRESSING THE IMPLICATIONS OF AN AGEING FISHERIES LABOR FORCE IN JAPAN<sup>1</sup>**

### **1. Introduction**

1. Japan is made up of 7 277 islands. Mountains and forest cover approximately 70% of the land; arable space is limited. The traditional Japanese diet is made up of food resources from the ocean. Around 40% of the protein consumed by Japanese people comes from seafood.<sup>2</sup> Japan's traditional fishing communities are located in nearly all the coastal areas nationwide. About 6 200 fishing villages exist along Japan's coastlines, which extend for 35 000 km.

2. These remote coastal communities face grave socio-economic problems today. Fisheries are the most important sources of revenue in remote coastal communities, but their production has been steadily declining in recent years. The number of fishery workers is also decreasing and the workforce continues to age rapidly.

3. The implications of an ageing fishery workforce are not limited to social problems. It has often been pointed out that the ageing of fishery workforces may create adverse effects for the rational use of resources. Let us take the example of small coastal trawlers operated by 2-3 man crews. During the operation, the crews frequently hoist the net completely on board to gather the catch and release the untargeted species. However, as crews become older, their physical strength wanes and they are unable to pull the net up as frequently. As a result, the trawling net could stay underwater for hours. The fish would then be compressed in the cod-end of the net and their commercial value would decrease. In addition to this the survival rate of undersized fish or by-caught species would also fall, because the untargeted species would not be released in time.

4. Alleviating the effects of an ageing workforce would, therefore, bring about certain positive socio-economic and environmental effects. This paper examines the current state of the ageing issue in Japan and describes the government's attempts to deal with the problem.

### **2. Ageing and Diminishing Japanese Fishery Workforces**

5. The number of fishery workers in Japan has been decreasing for decades (See Figure 1). It fell from 525 000 in 1971 to 231 000 in 2004 according to government statistics<sup>3</sup>. The gender ratio of the fishery workforces has remained relatively stable. A proportion of male workers represented 84% of all fishery workforces in 2004, while that in 1971 was 82%. 84% of the workforce was male in 2004 and in 1971 the percentage of male fisherman in the workforce was 82%.

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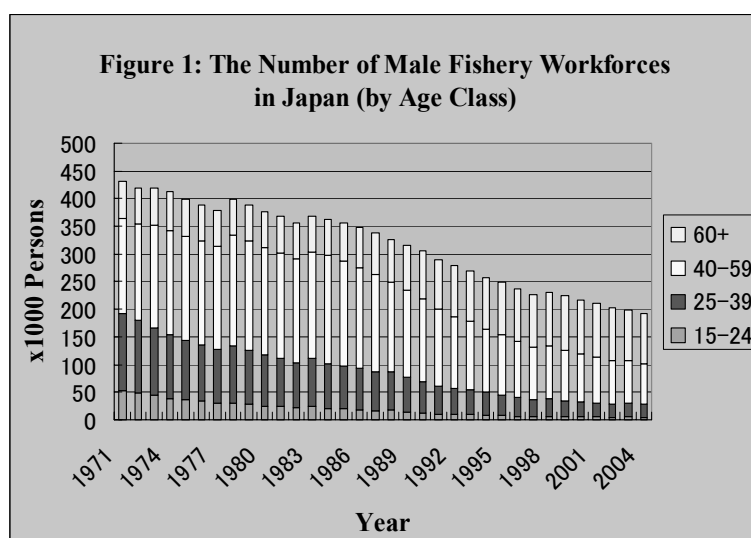
<sup>1</sup> Written by Mr. Nobuyuki Yagi, Fisheries Agency, Tokyo Japan

<sup>2</sup> Figures are from the *Food Balance Sheet*: Ministry of Agriculture, Forestry and Fisheries, Japan. December 2002.

<sup>3</sup> The source is the *Annual Report on the Movement of Fisheries and the Fisheries Census*, MAFF. Under these statistics, a "fishery worker" is a person who commercially operates fishing activities more than 30 days a year.

6. The data on age composition for male fishery workers is available from the same statistics used above. According to these statistics, the ageing fishery workforce has been increasing over the same period. The percentage of male fishery workers over 60 years old went up from 14% in 1971 to 47% in 2004. Furthermore, in 2004, 38% of them were between the ages of 40 and 59, and 13% of them were between the ages of 25 and 39. The proportion of young workers is extremely low. In the same year, only 3% of male fishery workers were between 15 and 24 years old.

7. The number of female workers has also been declining. In 1971 there were 93 000. In 2004 the number fell to 37 000. Although no annual statistics on age-class data for the female workforce is available, the ageing of female fishery workforces is recognized by the Fisheries Census conducted every 5 years.



[by Age Group]

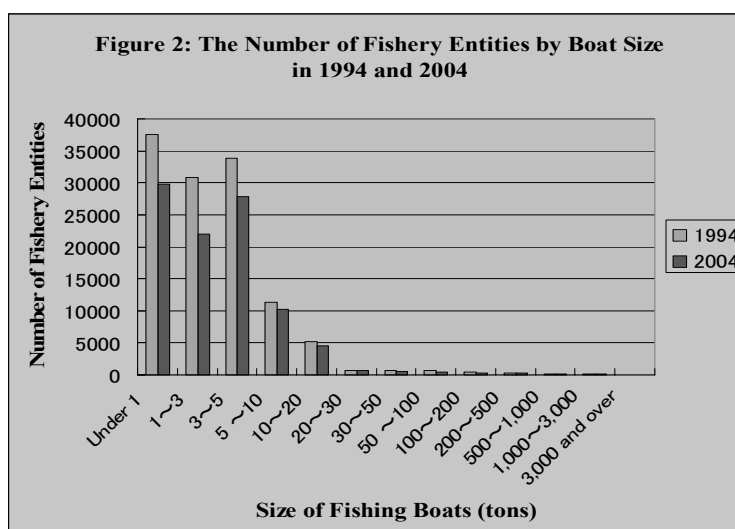
### 3. Changes in the Number and the Size of Fisheries Entities

8. The number of entities engaged in fishery production has also been decreasing in Japan. Figure 2 indicates the number of fishery entities in 1994 and 2004<sup>4</sup>. The decrease can be observed in all the entities regardless of the size of the fishing boat they own. In other words, the number of both small and large sized entities has decreased simultaneously (when we assume the size of the boat owned by fishing entity also represents the size of the entity itself).

9. Judging from the above, no tangible shift (from small businesses to large businesses, for example) has been observed with respect to the size of fishing entities. In 1994 a large majority of Japanese fishing entities were small businesses that owned fishing vessels of less than 5 tons. The predominance of the smaller fishing entity remained unchanged in 2004. During the past decade, the number of fishing entities in Japan has gone down significantly, while unused fishing ground has gone up.<sup>5</sup> The data also suggests that no enlargement of the size of the fishing business has actually taken place during this period.

<sup>4</sup> Source: the *Annual Fishery Production Report*, the Government of Japan.

<sup>5</sup> Under Japan's right based fishery management system, the fishery rights are usually held by local fishery cooperative associations. Fishery cooperative associations divide the rights according to the number of the individual members of the associations, and entrust individual members with a task to exercise the rights.



#### 4. Changes in Sales, Revenue and Costs of the Average Fishing Family

10. Costs and revenues of an average fishing family in Japan have not changed much during the period after the 1990's, as shown in Figure 3 below<sup>6</sup>. The average sales were around JPY (Japanese Yen) 5 million<sup>7</sup> throughout the 1990's (please note that revenue is equal to sales minus cost, and therefore the sum of revenues and cost represents the sales). The average number of fishing days per year, which is around 130-150 days, did not change throughout this period. Thus, the level of sales from the per-unit fishing activities have not significantly increased or decreased.

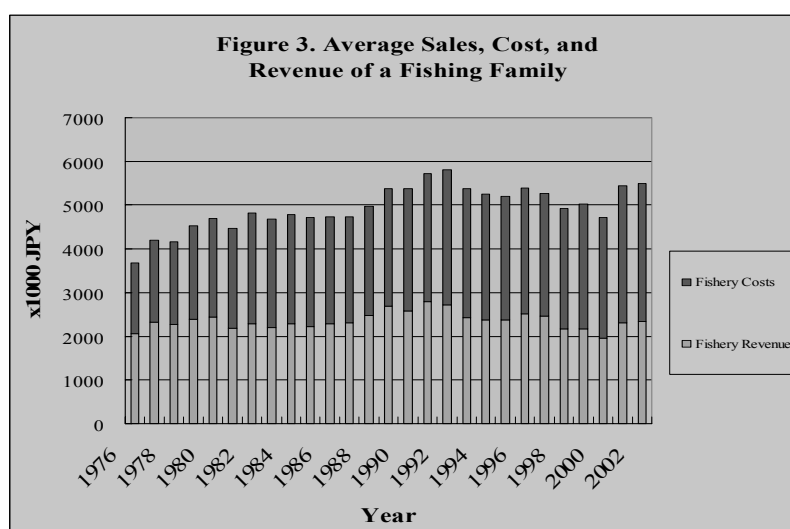
11. This data could support the previous findings that no enlargements of the size of the fishing business have actually occurred during the past 10 years, despite the fact that a significant number of fishing entities in Japan has been reduced and the amount of unused fishing ground is going up.

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In most cases, the individual member is allowed to exercise the right to operate certain fishery/aquaculture within a limited ocean area allocated by the fishery cooperative association, based on the allocation policy agreed by the cooperative members. If the individual member does not exercise the right in a given period of time, it means that the allocated ocean areas will not be used for certain fishery/aquaculture operations during that period.

<sup>6</sup> Source: *Annual Report on Economy of Fishery Families*, the Government of Japan.

<sup>7</sup> Recent exchange rate is: USD 1 equals approximately JPY 115.

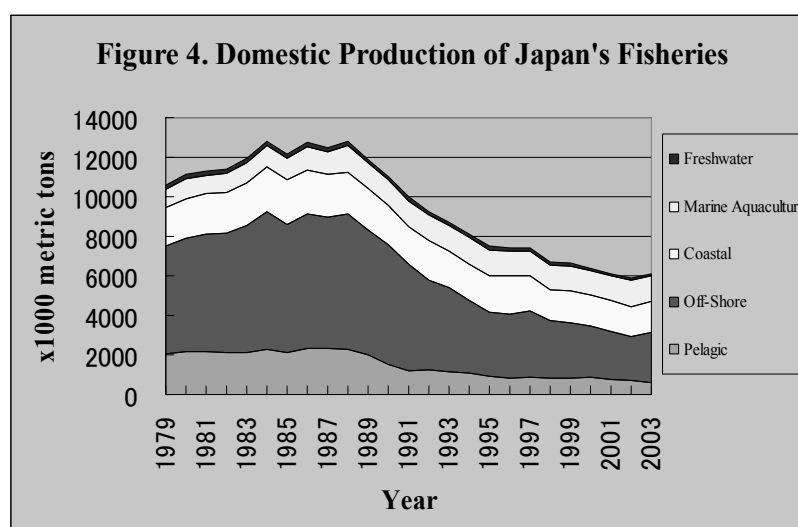


### 5. Recent Decrease in Japan's Fishery Production

12. Since the mid-1980s Japanese fishery production has steadily declined. In 2003, production was 6.1 million tons, which is about half of what it was in the 1980s.

13. Figure 3 below shows the changes in the production volume of freshwater, coastal, offshore, pelagic fisheries, and aquaculture<sup>8</sup>. The decrease in production volumes of coastal fishery has been relatively slow, while the productions of offshore and pelagic fisheries experienced sharp declines after the 1980's.

14. This data is consistent with previous findings that show how the number of fishery workers has declined without any tangible increases in size of the per-unit fishery during the past 10 years. In other words, the reduction in the number of the fishers directly corresponds to the decrease in Japanese fishery production after the mid-1980s.

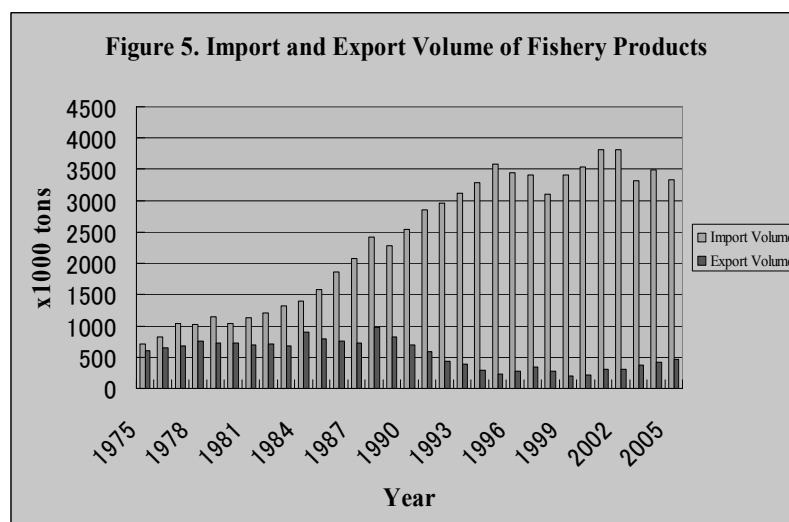


<sup>8</sup> Source: *Fishery Production Statistics*, the Government of Japan.

## 6. Increasing Imports in Fishery Products

15. The value of import fishery products in Japan drastically increased after the 1970's, see Figure 5 below<sup>9</sup>. Currently Japan is the world's largest importer of fish products. Thirty seven per cent of the world's fishery production is exported, and Japan's imports account for one quarter of it according to FAO statistics. The reduction in domestic production is counterbalanced by the increase of imports.

16. Exports of Japan's fishery products are relatively small. The volume of Japan's import and export in fishery products is 334 and 468 000 metric tons respectively in 2005.



## 7. Possible Reasons for the Ageing Workforces (Economic Aspects)

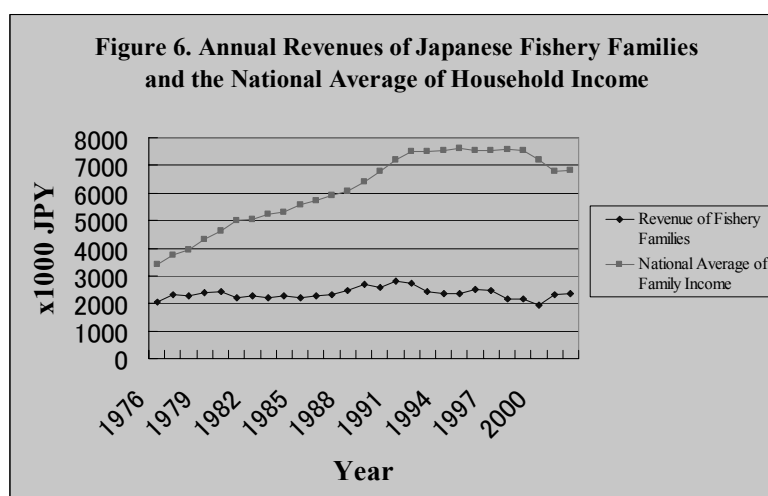
17. The fishery workforce is ageing because the number of new recruits diminishes every year. The Basic School Research Report of the Government of Japan indicates that only around 600 high-school graduates entered the fishing sector every year from 1994 to 2004. The Fisheries Census conducted every 5 years provides the number of annual recruits. It is between 1 500 and 4 500 people. The number fluctuates according to the research (the lowest recruitment was recorded in 1980's<sup>10</sup>). In any case, the number of recruits represents less than 1-2% of the fishery workers currently employed. This amount is not enough to sustain the current number of workers.

18. What are the reasons for this low recruitment rate? One possible explanation is the low-income level of fishery workers. Figure 6 compares the annual revenues of fishery families to the national household income average<sup>11</sup>. While the annual revenue from fishery households remain constant at JPY 2 million, the national household income average in Japan increased to a level of JPY 7 million per year in 1990's. This difference could explain the low recruitment rate for the fishery sector.

<sup>9</sup> Source: *Trade Statistics*, the Government of Japan.

<sup>10</sup> Dr. Kazutoshi Kase suggested that not only the recruitment rate but also retirement rate or volatilities in the job market should be examined. Kazutoshi Kase "The Restructuring Process of Japan's Fisheries" 2001, p. 124, The Norin Tokei Kyokai (available in Japanese only).

<sup>11</sup> Source: *Annual Report on Economy of Fishery Families and the Household Survey*, the Government of Japan



19. In addition, it has often been noted that income in the fishery sector is more volatile than income in other sectors. Sales from fishing largely fluctuate depending on natural conditions (i.e., weather conditions or fish abundance).

#### 8. Possible Reasons for the Ageing Workforce (Institutional Aspects)

20. The last section demonstrated that the low income prevalent in the fishery sector could contribute to the low recruitment rate in the sector. This finding raises questions regarding why business integration (or enlargement of fishery operations) has not yet taken place, since doing so would enhance the sales and revenues from fishing. As we have seen in the previous section, a significant number of fishing entities in Japan have been significantly reduced, but unused fishing grounds have been left more or less untouched.

21. One explanation for this is that, because old license holders do not release the fishery rights (license) even though they do not exercise the rights, newcomers or neighbouring peer fishers are not able to receive the right. Consequently, unused fishery grounds covered by these un-exercised rights remain untouched. The reason why right holders do not forgo their rights is that they hope their children or grandchildren, who live in Japan's urban areas, will eventually return to the coastal communities of their origin<sup>12</sup>.

22. Fishery management in coastal areas is based on traditional local fishery rights: a group of fishers/fishery workers (fishery cooperative associations) traditionally assume exclusive rights for operating certain fisheries and, thus, assume all the responsibility for the long-term sustainability of resources. Although it does not provide an exclusive right per se over sea areas, a right to engage in fisheries is provided under limited conditions with regard to the fishing season, species and fishing methods. The fishing right is non-transferable. Leasing of the rights is prohibited and there are restrictions on the creation of mortgage rights. Detailed regulations for coastal fisheries are implemented through local fishery cooperatives, and so are the rules on releasing and redistributing fishery rights. The rights are authorised by the governments through the licenses issued by prefectural governors. The governors may revoke or revise the fishery rights in light of the public interest. In this case, however, the government has to pay a substantial compensation.

<sup>12</sup> This information is based on an author's interview with local fishery authorities. The same point was referred to in "Changes and Issues on Production Structure in Coastal Fisheries" Masaharu Demura 2003, *Norin Kinyuu* 2003.11.

## 9. An Attempt to Encourage Recruitment

23. From 1997, the Japan Fisheries Association and the National Federation of Fisheries' Cooperative Associations started to place regular job announcements through their standing job information offices (the latter is for coastal fisheries and the former is for offshore or high seas fisheries). The Japan Fisheries Association has been holding annual conferences for recruitment purposes since 2003. From this year (2006) the recruitment program has been stepped up. It now includes annual information dissemination sessions and internship sessions for prospective new comers to the fishery sector.

24. The Fisheries Agency of the Government of Japan provides financial support to these activities. The form of support is to compensate travel costs for fishermen and women/fishery workers who come to Tokyo and/or Osaka for the information dissemination conferences from remote fishing communities. Although the government does not pay interns a salary, some of the logistical costs born by local fishery communities associated with the intern project are financed under the government support program. In May 2006, 152 and 72 prospective fishermen and women/fishery workers showed up at the conference venues in Tokyo and Osaka, respectively. Approximately 100 persons took the internship.

25. According to reports, this centralized program has reduced the individual local fisheries associations' financial burden for recruitment activities<sup>13</sup>. Newcomers and local associations that welcome them show their appreciation for both the internship and training programs at local fishing cites. Basic knowledge and skills regarding professional fishing operations (for example, skills related to operating equipment safely or knowledge about the local migration of target fish) can be more efficiently transferred to the newcomers through this program.

## 10. Discussions and Conclusions

26. To overcome the problem, certain programmes are carried out through the joint effort of the government and fishery associations in Japan. It can be argued, however, that increasing the annual revenue of families in the fishing business so that it is more in line with the national household income average is an important step towards solving the problem of low recruitment and ageing.

27. This task represents many challenges. The price of fish cannot be easily increased for domestic fishermen and women/fishery workers given the current circumstances whereby imported fishery products and Japanese domestic products compete with each other on the same market. Reducing the production cost is also problematic. Japan's labor and other business costs are usually higher than the international average. This sort of business environment cannot be changed through efforts made by the fishery sector alone.

28. Furthermore, the complex system of fishery management in Japan is prone to inefficiency. Other major players in the international fishery communities most likely have higher productivity rates. For instance, under the right-based management scheme, Japanese local fishery cooperatives usually employ input regulations such as (1) entry limitation to fishery operations, (2) the establishment of closed areas and closed seasons, (3) prohibition on specific gear use (including mesh size restrictions), and (4) restrictions on the size or horsepower of fishing vessels. Some output control (catch control) systems coexist with the traditional input control.

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<sup>13</sup> Makoto Otani "Research on the Newcomers to the Fishery Sector (an Example at Uragou District in Shimane Prefecture)" 2004, Tokyo Suisan Shinkoukai (available in Japanese only).



29. Nevertheless, revising the fishery management system by changing the social factors that underpin the industry would be difficult. It is also necessary to review potential environmental effects as fish stocks that could be brought about.

30. It has also been pointed out that the current inactiveness regarding business integration in the coastal fishery may contribute to the sector's inefficiency. In fact, as noted above, the current right-holders tend to keep their fishing rights no matter how old they become. However, it is extremely difficult for the government to revise fishery rights, unless fishermen and women/fishery workers and their local fishery cooperative associations agree to release the rights. At the same time, even when business integration has been successful, the early breakup of integrated entities is frequently reported<sup>14</sup>.

31. In any case, various points have been raised regarding what causes low recruitment. It should be noted, however, that the cause of the ageing has not been fully examined yet. Further analyses are necessary regarding the social and economic aspects of the causes behind ageing in order to examine the necessity of additional policy measures. To this end, certain statistical testing to check this assumption will be needed to prove the causal relationship between ageing and other independent economic parameters.

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<sup>14</sup> Shiro Tanaka "Co-management of Fishery Business under the 200 mile zone regime" 2003, Seizando, pp 146 (available in Japanese only)

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- Demura, Masaru (2003), “Changes and Issues on Production Structure in Coastal Fisheries”, *Norin Kinyuu* 2003.11 (available in Japanese only)
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