

Outlook for Fish Supply and Demand Chain in Finland

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Abstract: The market for fish products in Finland has changed markedly since the removal of trade barriers after the country's accession to the EU in 1995. Further the transition from a producer to a consumer-oriented society has created numerous new demands for food products. New dietary trends, such as low fat intake, and food safety, as well as interest in the ecological aspects of food also apply to fish products. The outlook for the entire production chain needs to be clarified to enable producers to react to new consumer demands. Topical information is useful for fisheries administration and policy planning too. The general idea of this study is to analyse consumers' and producers' opinions regarding fish products and the production environment simultaneously. A barometer survey aims to collect data that are reliable and comparable in the long term. Follow-up data have been collected through computer-based phone interviews once a year since 2000. Samples comprise 2000 consumers and 350 enterprises countrywide. Enterprises are divided into fishing, aquaculture, processing and trade (see also abstract: Ahvonen & Honkanen). The latest data, collected in February 2002, show that perceptions of fish are very favourable. Fish is considered a high-quality, safe and ecologically produced food. Finns think that the selection of fish products will increase in the near future and that the supply of new domestic cultured fish species will expand.

Keywords: survey, consumption, fishery industry, fish markets

1. INTRODUCTION

The market for fish products in Finland has changed distinctly since the removal of trade barriers after joining the EU in 1995. The transition from a producer-oriented to a consumer-oriented society has also created numerous new demands for food products. In the long run, consumption behaviour is determined by attitudes and customs. In the short term, behaviour can be influenced by several factors, i.e. product image, news of the health of the product and price and quality of the product. New food trends, such as lightness, safety and healthiness, as well as the interest in ecological aspects of products concern fish, too. Information about the basic requirements and desires of consumers is needed for product development and marketing. Information on consumers' and enterprises' perceptions of their environment are of vital importance for policy makers. It is essential to be aware what are the fundamental differences in the fisheries supply and demand chain. Therefore the outlook of the entire production chain needs to be clarified to enable producers to react to new consumer demands.

This study examines the views of fishery enterprises and consumers on fisheries and fish products. The survey was targeted at the entire chain of supply and demand in fisheries. Fishing, aquaculture, processing and the wholesale and retail trade represented supply; demand was represented by consumers. Consumers and enterprises were asked simultaneously to give their opinions on the outlook for fish products.

This study is a part of wider project to establish a regular follow-up data collection (Ahvonen and Honkanen 2002a). The subjects of questions varies from economic prospects of enterprises (Ahvonen and Honkanen 2001, Ahvonen and Honkanen 2002b) to outlook for fisheries (Honkanen and Ahvonen 2001, Honkanen and Ahvonen 2002) and consumption habits. In this paper we have focused on consumers and enterprises opinions concerning product attributes facing fish markets in 2002 with respect to previous results. The full analysis frame of regular follow-up data collection is presented at Figure 1.

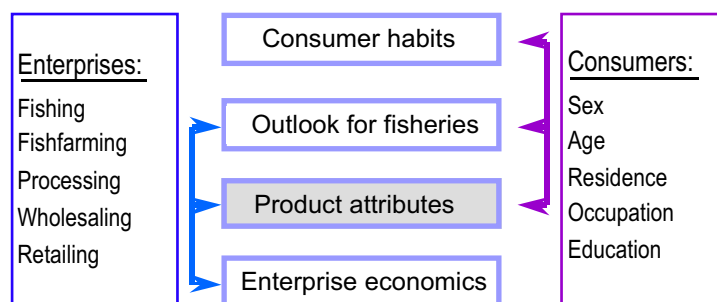


Figure 1. The analysis frame of follow-up data collection. The darkened topic is discussed in this paper.

2. MATERIAL AND METHODS

2.1 Survey population and sample

The barometer survey was preceded by a pilot study in which the indicators and the data collection system were tested in cooperation with Statistics Finland (e.g. Godenhjelm et al. 2000, Ahvonen and Honkanen 2002a). The regular follow-up data have been collected every year since 2000. In 2002 survey population for enterprises consisted of all those fisheries sector enterprises on the business register of Statistics Finland whose annual turnover exceeded € 8300. Thus the survey population comprised a total of 950 firms and entrepreneurs. The sample size was 350. The firms that had ceased operations or that could not be contacted were removed from the sample as overcoverage. The final net sample thus included 327 enterprises, of which 87.8 % took part in the interviews. The sample was allocated to fixed quotas to ensure a sufficient number of observations of all strata (Tables 1 and 2).

The survey population consisted of Finns, 15-74 years of age, listed in the Central Population Register. The sample contained 2200 consumers (Table 2). Comparison of those participating in the interview and the survey population by sex and age group shows that the sample represents the survey population very well (Table 3).

Table 1. Survey populations, samples, nonresponse and response rates in 2002.

	Enterprises		Consumers	
	N	%	N	%
Survey population	950	100,0	3 904 373	100,0
Sample	350	36,8	2 200	0,06
Overcoverage	23	6,6	8	0,3
Net sample	327	100,0	2 192	100,0
Nonresponse	40	12,2	582	26,5
- no contact	9	2,7	373	17,0
- refusal	15	4,6	168	7,6
- other reason	16	4,9	41	1,9
Response	287	87,8	1 610	73,4

Table 2. Sampling fractions of the enterprises (n/N =sample/survey population) and final response percentages by sectors in 2002.

Sector	Sampling fractions n/N	Response %
Fishing	67 / 383	91,0
Aquaculture	87 / 214	92,0
Processing	63 / 147	87,3
Wholesale	55 / 83	83,6
Retail trade	55 / 123	81,8
Total	327 / 950	87,8

Table 3. Consumers participating in the study and the survey population in 2002, i.e. Finns, 15-74 years of age, by age and sex (%).

Age group	Participating Females	Survey population Females	Participating Males	Survey population Males
15-24	18,3	16,4	16,3	17,3
25-34	15,1	16,3	17,0	17,2
35-44	20,0	19,1	19,5	19,9
45-54	18,9	20,9	22,5	21,5
55-64	16,4	14,8	15,8	14,3
65-74	11,4	12,5	8,9	9,9
Total	100,00	100,0	100,0	100,0
N	800	1 959 601	810	1 944 772

2.3 Interviews

Consumers and entrepreneurs were interviewed simultaneously by the computer-aided telephone interview system (CATI) of Statistics Finland. Consumers were interviewed in conjunction with the February consumer survey of Statistics Finland (cf. Statistics Finland 2002) and entrepreneurs separately.

Enterprises and consumers included in the sample were informed beforehand by letter about the interview and its content. The interviews with enterprises were held with a representative of management. The mean interview time for consumers was 8 minutes and for enterprises 15 minutes in 2002. The formulation and content of the interview questions followed the general practices of consumer and industry barometer surveys. Starting in 2001, consumers are to be asked questions concerning outlook for fisheries and product attributes every other year. Consumer opinions on product attributes will be next surveyed in 2003.

2.4 Processing and presentation of data

The results for enterprises and consumers were estimated to correspond to the survey population by weighting all the measuring data by the stratum-specific sampling fractions and response probability (nonresponse) at unit level. The weighting coefficients at unit level were calibrated to make the estimated marginal distributions of the age, sex and area of residence of a person correspond to those for the whole survey population, i.e. the population structure. The enterprises were calibrated on the basis of their turnover (e.g. Deville and Särndahl 1992, Deville et al. 1993).

The results are presented here as balance figures that basically show the weighted difference between positive and negative percentages. Balance figures were formed from percentages of responses. These were obtained by summing the weighted response percentages using the methods generally applied in surveys (e.g. European Commission 1997, Statistics Finland 2002). The values of the balance figures can range between -100 and 100. In the balance calculations the response options were assigned the following weight coefficients:

Agree/Highly probable.....+ 1.0
 Partly agree/Fairly probable.....+ 0.5
 Don't know..... 0.0
 Partly disagree /Fairly improbable... - 0.5
 Disagree/Highly improbable..... - 1.0

Following abbreviations are used in figures 2- 20:

Fish. = Fishing
 Aqua. = Aquaculture
 Proc. = Processing
 Whol. = Wholesale trade
 Ret. = Retail trade
 Cons. = Consumers

3. RESULTS

3.1 GENERAL PERCEPTIONS OF FISH PRODUCTS

All parties were unanimous about the health value of eating fish. No material differences emerged in this opinion between the survey years. Parties were also unanimous about the importance of fish being of domestic origin and about the reasonable price of fish. (Fig. 2 – 4).

Both enterprises and consumers rejected the statement that fish is difficult to prepare. Likewise the statement that fish smells unpleasant was widely rejected in every year surveyed. Opinions about how well fish keeps were somewhat divided. Consumers and the wholesale trade were more inclined than other parties to agree with the statement that fish does not keep well. A new statement in 2001 was that “fish is tasty” which all parties were largely in agreement. (Fig. 5-8).

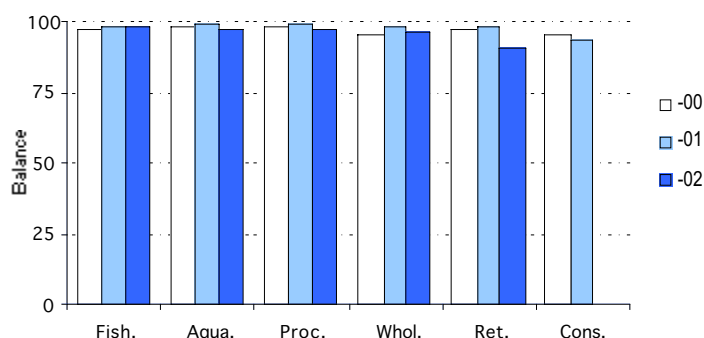


Figure 2. "Fish has health value". Opinions of enterprises and consumers on the statement expressed as balance figures.

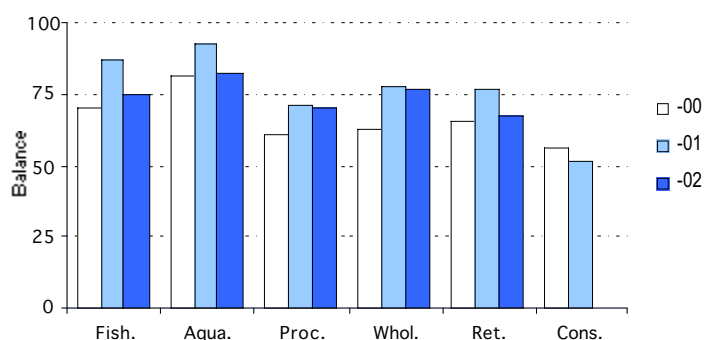


Figure 3. "Fish is reasonably priced". Opinions of enterprises and consumers on the statement expressed as balance figures.

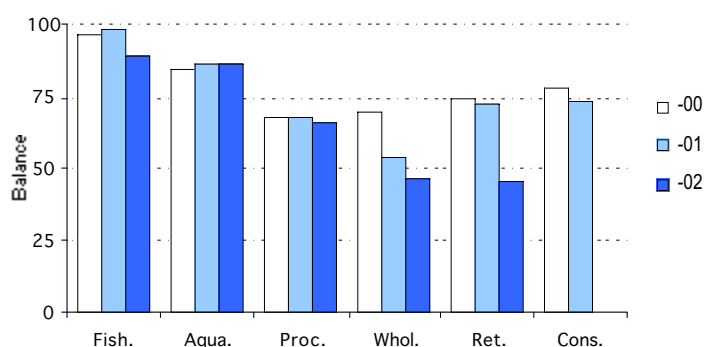


Figure 4. "The domestic origin of fish is important ". Opinions of enterprises and consumers on the statement expressed as balance figures.

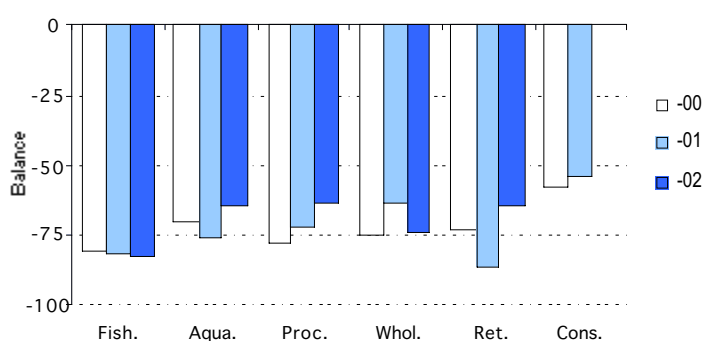


Figure 5. "Fish is difficult to prepare ". Opinions of enterprises and consumers on the statement expressed as balance figures.

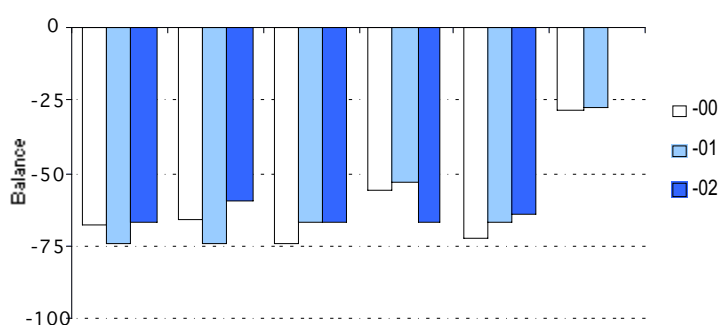


Figure 6. "Fish smells unpleasant ". Opinions of enterprises and consumers on the statement expressed as balance figures.

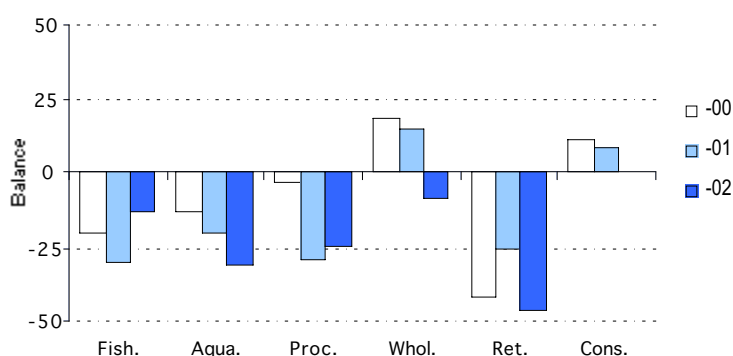


Figure 7. "Fish is difficult to store ". Opinions of enterprises and consumers on the statement expressed as balance figures.

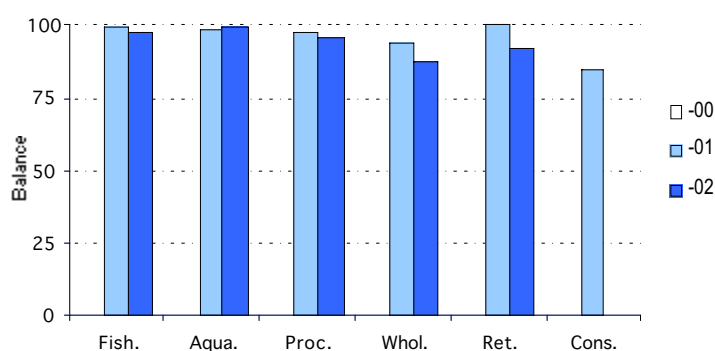


Figure 8. "Fish is tasty ". Opinions of enterprises and consumers on the statement expressed as balance figures.

3.2 SHORTCOMINGS IN SUPPLY OF FISH

The most marked shortcoming in the supply of fish was the lack of information about the origin of fresh fish. With the exception of the fish trade, the entire fishery sector and also consumers considered that information about the origin of fish tended to be insufficient. Opinions were almost equally divided between those for and against the statement that the package markings on packed fish products are inadequate. Disagreement with the statement was strongest in the processing and retail trade. (Fig. 9-10).

All parties, consumers included, were generally of the opinion that the supply of fish products is not too limited. The statement that fish products have spoiled more quickly than expected was refuted widely and even more strongly than before. Opinions about fish counters were favourable and the statement that fish counters are not clean was refuted outright. The statement that customers do not receive adequate service at fish counters was also refuted. Of interest is that disagreement with the statement about the inadequacy of customer service was strongest among consumers. (Fig. 11-14).

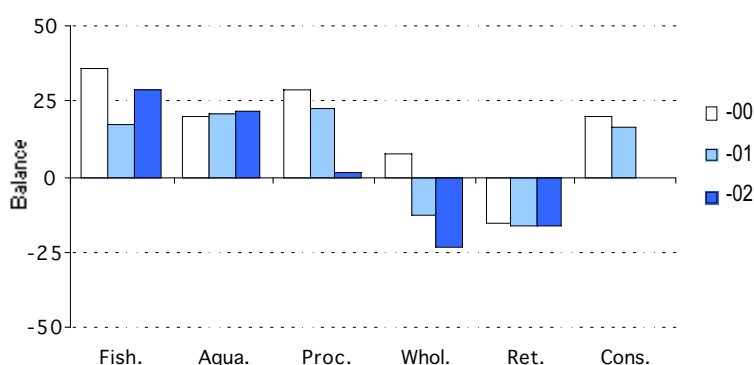


Figure 9. "Information on the origin of fresh fish is inadequate". Opinions of enterprises and consumers on the statement expressed as balance figures.

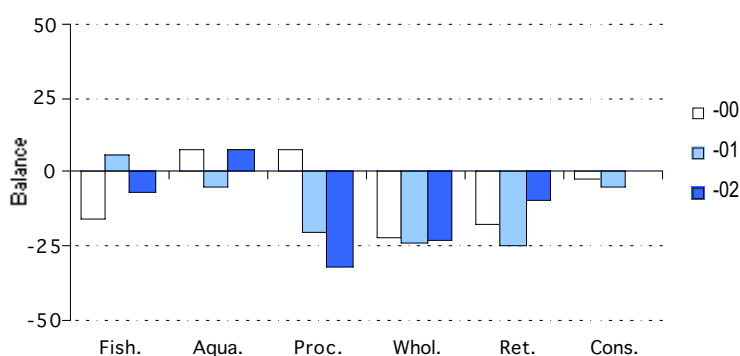


Figure 10. "Package markings on fish products are inadequate". Opinions of enterprises and consumers on the statement expressed as balance figures.

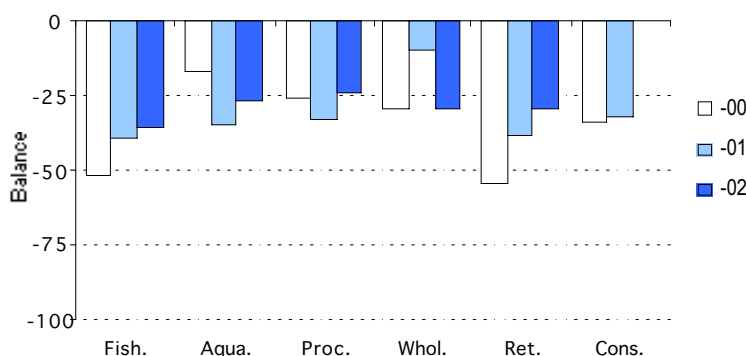


Figure 11. “ *The supply of fish products is too limited* ”. Opinions of enterprises and consumers on the statement expressed as balance figures.

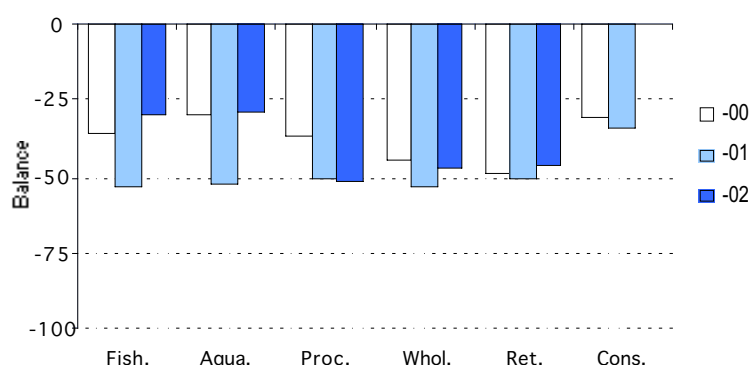


Figure 12. “ *Fish products have spoiled more quickly than expected* ”. Opinions of enterprises and consumers on the statement expressed as balance figures.

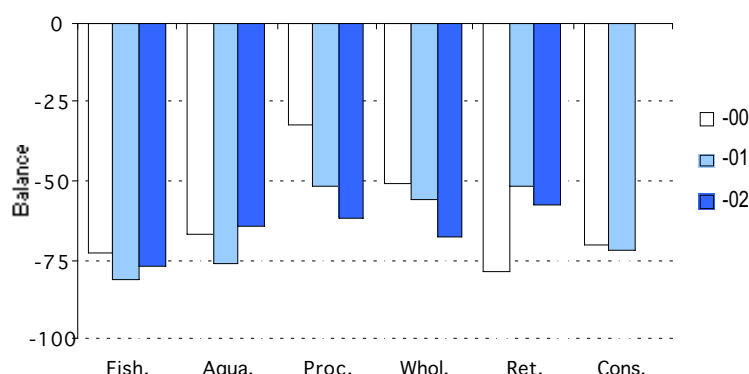


Figure 13. “ *Fish counters are not clean* ”. Opinions of enterprises and consumers on the statement expressed as balance figures.

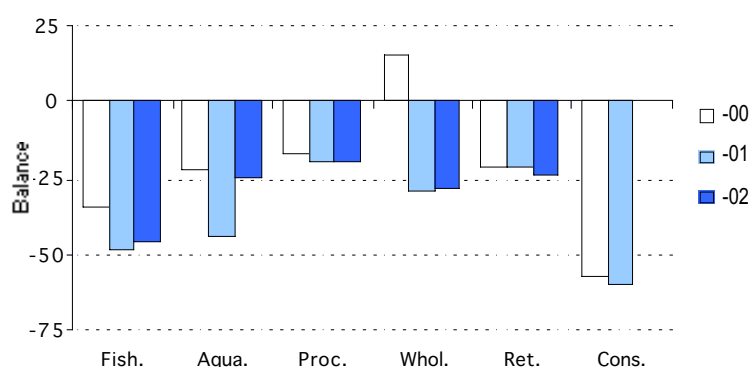


Figure 14. “ *Customer service at the fish counter is inadequate* ”. Opinions of enterprises and consumers on the statement expressed as balance figures.

3.3 DEMAND FOR NEW PRODUCTS

Both enterprises and consumers thought that Finnish consumers would buy organic or eco-labelled fish products in the near future (next 2-3 years) if they were available. The belief of wholesale trade in consumers' interest in organic and eco-labelled products has increased while belief of retail trade has slightly decreased. Both enterprises and consumers believed that demand would be found for new domestic cultured fish species. (Fig. 15-16).

Confidence in the prospects of new foreign exotic imported fish on the market was rather low. In contrast, there was a strong belief that consumers would buy health-enhancing fish products if they were available in the near future. The belief has increased mostly among fish trade. A new question asked in the 2001 survey was: “Do you think that Finnish

consumers would buy genetically modified fish products in the near future (next 2-3 years) if they were available?" All parties expressed grave doubts. (Fig. 17-19).

Estimates were requested of how consumer prices of fish would change during the following 12 months. On the whole it was felt that consumer prices would rise slightly compared with the level at the time of interview. (Fig. 20).

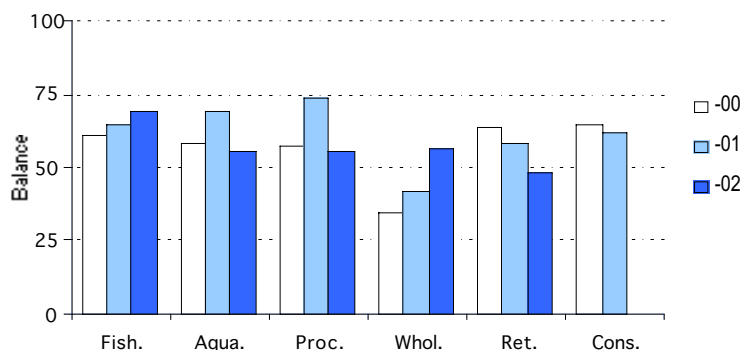


Figure 15. “Organic and eco-labelled fish products”. Opinions about consumers’ willingness to buy new fish products in the near future (next 2-3 years) expressed as balance figures.

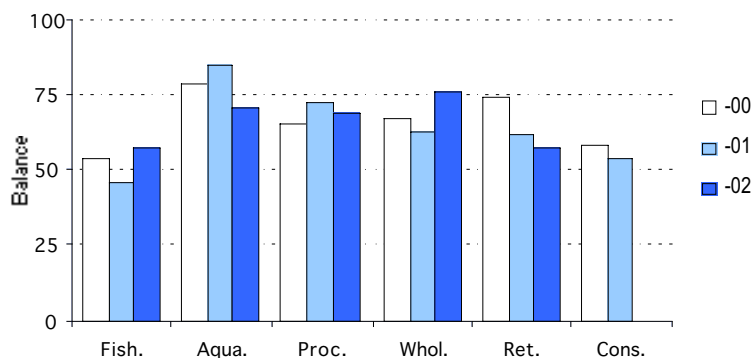


Figure 16. “New domestic cultured fish species”. Opinions about consumers’ willingness to buy new fish products in the near future (next 2-3 years) expressed as balance figures.

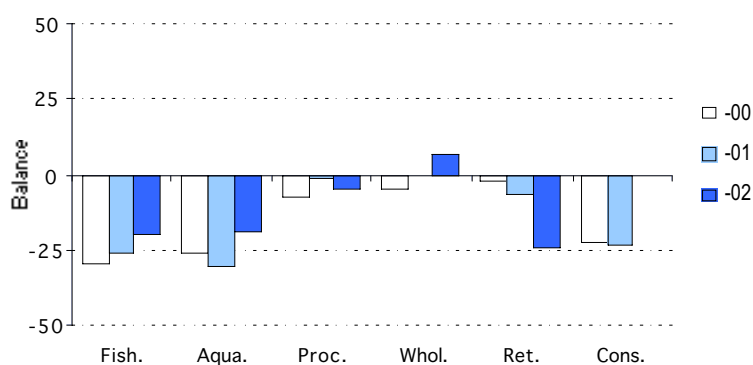


Figure 17. *"New exotic imported fish species "*. Opinions about consumers' willingness to buy new fish products in the near future (next 2-3 years) expressed as balance figures.

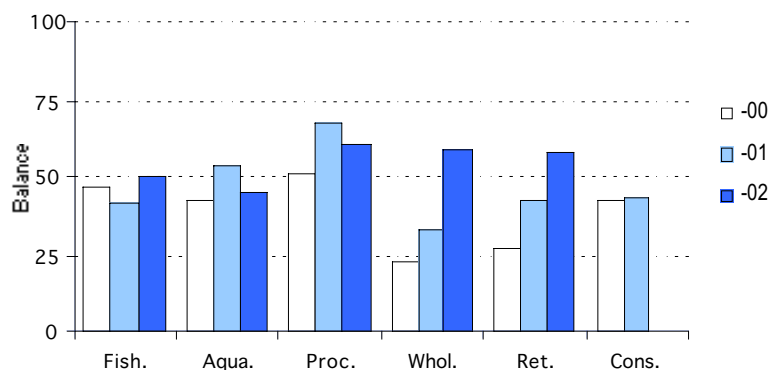


Figure 18. *" Health-enhancing fish products "*. Opinions about consumers' willingness to buy new fish products in the near future (next 2-3 years) expressed as balance figures.

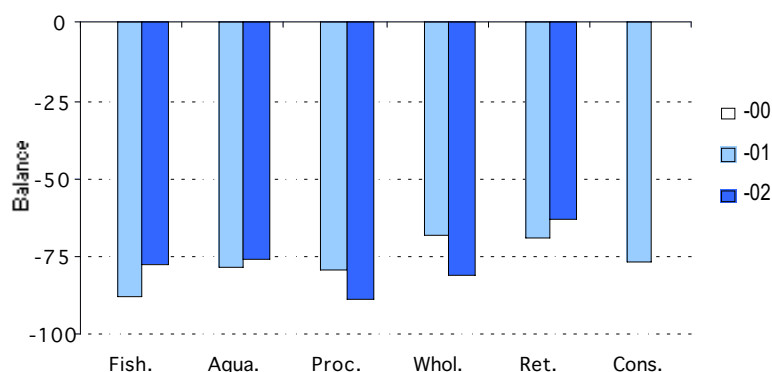


Figure 19. *" Genetically modified fish products "*. Opinions about consumers' willingness to buy new fish products in the near future (next 2-3 years) expressed as balance figures.

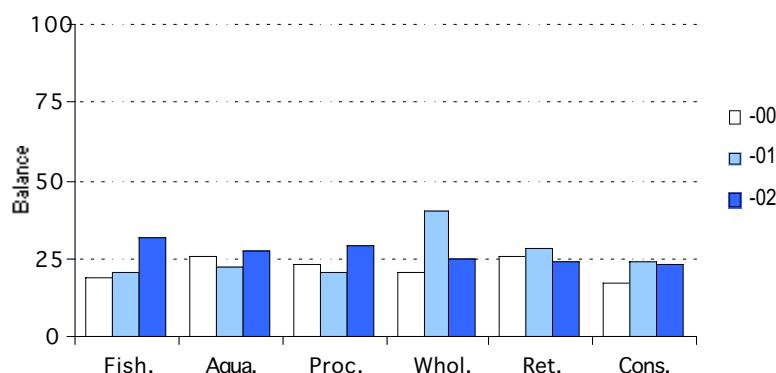


Figure 20. *" Consumer prices of fish and fish products "*. Opinions of enterprises and consumers about how consumer prices of fish products will change during the next 12 months expressed as balance figures.

4. DISCUSSION

Perceptions of fish and fisheries were very similar to those in the previous surveys. Indeed, many of the points measured are more a matter of permanent attitudes than changing opinions. In the course of the past years problems related to the primary production of foods, e.g., animal diseases and the environmental toxin contents of fish, have been given prominence in the media. This may well explain at least some of the changes noted in opinions.

Fish is highly appreciated, and perceptions of fish are very positive. The views of enterprises and consumers are, on the whole, very similar. Both consumers and entrepreneurs in the fisheries sector regard fish as a tasty, nutritious and reasonably priced food. Finns believe that selection of fish products will grow in the near future. Supply is expected to expand to include a greater range of eco-labelled and health-enhancing fish products. Fish of domestic origin has a very good reputation and there would seem to be demand for new domestic cultured fish species. Foreign fish is not seen as posing a significant threat to domestic fish although during the last years there has been an increasing market for foreign substituting fish products in Finland. The majority of Finns think that food stores will be selling new health-enhancing fish products within the next few years. However, both enterprises and consumers expressed grave doubts about the demand for genetically modified fish products.

The favourable attitudes towards fish were often prompted by a personal and tangible relationship to fish: 95 per cent of Finns eat fish, 80 per cent prepare fish dishes themselves from fresh fish, and more than half go fishing themselves or take part in fishing at least sometimes. (Honkanen and Ahvonen 2002). Although attitudes towards fish are very positive, statistics show that there has been no material change in the overall level of fish consumption during the last decade (FGFRI 2002). Changes have, however, occurred in the structure of consumption. Even though a large proportion of the population still use fish they themselves have caught, there is clearly less willingness than before to buy undressed fish. Young people in particular showed more reserve about undressed fresh fish than did older age groups and, similarly, responded favourably to prepared and processed fish products (Honkanen et. al. 1998) According to the barometer, the fish market will have to face pressure for change in the future as well.

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