

# **Fishery Industry's Confidence towards the near Future in Different Levels of Production Chain in Finland**

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**Abstract.** The idea of this study is to follow general economic fluctuations and try to foresee how confident fishery industry is towards the near future and simultaneously indicate the relative development in the near past. A trend-and-confidence indicator describing the overall economic trend and expectations of enterprises was calculated from the means of balance figures of questions concerning change in financial standing, turnover and investments of an enterprise. The results can be divided into fishing, aquaculture, processing, wholesale and retail trade, i.e. to the whole production-processing-commerce chain. In February 2000, the confidence towards coming 12 months in the Finnish fishery enterprises was encouraged. The only sector that had deteriorated during the past year was fishing, however the outlook of fishing for the coming year was more promising. The results are based on a sample of about 300 enterprises representing a survey population of about 1070 fishery enterprises. The reliability of the results is discussed.

**Keywords:** fishery, confidence indicator, business survey, enterprise

## **1. INTRODUCTION**

Business surveys are a widely used method to gather opinions of economic fluctuations and outlook. Surveys are periodically addressed to samples of economic actors, who are asked to estimate relatively changes and expectations for the future of economic parameters related to their business. In Europe, the business surveys are conducted within the framework of the Joint Harmonised EU Programme that covers most economic sectors (European Commission 1997).

The results of the business surveys are often be expressed for different business sectors. Although a segmentation for the sectors, the opinions of fishery industry can seldom be found in the survey results separately. This can assuredly be explained by the fact, that the economic share of fishery is proportionally low in many nations. However, information on fishery enterprises' perceptions is of importance for policy makers. This is well emphasized in the European Union countries, where fishery is covered by the common fisheries policy.

The study examines the economic prospects and trends of fishery enterprises in 2000 in Finland. Enterprises were asked to evaluate some of their economic parameters. The present situation was compared with the previous 12 month period and with expectations for the following 12

month period. Enterprises were divided into fishing, aquaculture, processing and the

wholesale or retail trade. The data are based on a sample comprising some 300 enterprises. In this paper the results are presented as an indicator, that is loaded with questions concerning overall financial standing, turnover and investments of the enterprises.

The fishery business survey is part of a more extensive fishery barometer survey of the views of both enterprises and consumers on the current situation in fisheries, and on fish products and expectations regarding them (Honkanen & Ahvonen 2000). A barometer survey aims to collect data that are reliable and comparable in the long term. The methods and data collection system used in the present survey were therefore assessed in a pilot study (Ahvonen & Honkanen 1999).

A specialised fishery business survey was developed on the basis of the general business survey questions (e.g. European Commission 1997). A tailored survey was assumed to fit better with the respondents preconditions to answer to the questions. For instance, questions on inventory changes or volume of orders, that are included in the general business surveys are not economic key questions for primary production in fishery, i.e. fishing and aquaculture.

## 2. MATERIAL AND METHODS

### 2.1 Survey population and sample

The survey population for enterprises consisted of all those fisheries sector enterprises on the business register of Statistics Finland at the beginning of 2000 whose annual turnover exceeded FIM 50 000 ( $\approx$  € 8400). Thus the survey population comprised a total of 1074 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 299 enterprises, of which 85.6% took part in the interviews. (Table 1).

### 2.2 Data collection system

The whole fishery barometer survey system was preceded by a pilot study in which the indicators and the data collection system were tested in cooperation with Statistics Finland (Ahvonen & Honkanen 1999). The indicators were planned making use of the survey laboratory of Statistics Finland, in which a test group assessed the content, intelligibility and interpretability of the form with a cognitive pre-test (cf. Willis 1994, Sudman et al. 1996). Validity analysis for some of the question attributes was performed too (Godenhjelm et. al. 2000). After the indicators had been developed, the whole data collection system was tested by interviewing 53 enterprises (Ahvonen & Honkanen 1999).

**Table 1.** Survey population, sample size, nonresponse and response rates.

|                   | N    | %     |
|-------------------|------|-------|
| Survey population | 1074 | 100.0 |
| Sample            | 350  | 32.6  |
| Overcoverage      | 51   | 14.6  |
| Net sample        | 299  | 100.0 |
| Nonresponse       | 43   | 14.4  |
| - no contact      | 24   | 8.0   |
| - refusal         | 8    | 2.7   |
| - other reason    | 11   | 3.7   |
| Response          | 256  | 85.6  |

The fishery enterprises in the survey population were stratified into five fisheries sectors (fishing, aquaculture, processing, wholesaling, retailing) and two turnover classes of < FIM 1 million and  $\geq$  FIM 1 million (FIM 1 mill.  $\approx$  € 168 000), that is, a total of 10 strata. The sample was allocated to fixed quotas to give a sufficient number

of observations of all strata. The sampling fraction ranged from 13 % to 100 %, depending on the strata. (Table 2).

### 2.3 Interview questions

The formulation and content of the interview questions followed the general practices of enterprise surveys (e.g., European Commission 1997). The topics were the financial standing of the enterprise, sales and mean prices of the main fish products, the quantity and price of exports, production costs, total turnover, number of employees, volume of investments and amount of trade subsidies. Enterprises were asked to assess trends in the above topics during the past 12 months and their expectations for the coming 12 months.

**Table 2.** Sampling fractions ( $n / N =$  sample size / survey population) and final response percentages by stratum (sectors by turnover classes).

| Sector      | Strata               |  | n / N      | Response % |
|-------------|----------------------|--|------------|------------|
|             | Turnover Million FIM |  |            |            |
| Fishing     | <1                   |  | 55 / 427   | 80.9       |
|             | $\geq$ 1             |  | 24 / 24    | 95.2       |
| Aquaculture | <1                   |  | 45 / 167   | 80.5       |
|             | $\geq$ 1             |  | 45 / 82    | 92.8       |
| Processing  | <1                   |  | 30 / 97    | 82.6       |
|             | $\geq$ 1             |  | 30 / 56    | 93.3       |
| Wholesale   | <1                   |  | 31 / 31    | 82.6       |
|             | $\geq$ 1             |  | 30 / 51    | 85.7       |
| Retailing   | <1                   |  | 30 / 92    | 81.5       |
|             | $\geq$ 1             |  | 30 / 47    | 81.5       |
| All         | <1                   |  | 191 / 814  | 81.4       |
|             | $\geq$ 1             |  | 159 / 260  | 89.7       |
|             | All                  |  | 350 / 1074 | 85.6       |

### 2.4 Interviews

Entrepreneurs were interviewed by the computer-aided telephone interview system (CATI) of Statistics Finland in February 2000. Enterprises included in the sample were informed beforehand by letter about the interview and its content. The interviews were held with a representative of management.

### 2.5 Processing of data

The results 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 (e.g. Deville & Särndahl 1992, Deville et al. 1993) to make the estimated marginal distributions of the enterprises' turnover. Balance figures were formed from the weighted 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 2000). 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:

|                                     |      |
|-------------------------------------|------|
| <i>Improve / Increase</i> .....     | +1.0 |
| <i>Don't know / Unchanged</i> ..... | 0    |
| <i>Deteriorate / Decrease</i> ..... | -1.0 |

### 2.6 Presentation of results

A trend-and-confidence indicator describing the overall economic trend and expectations of enterprises was calculated from the means of balance figures of certain questions (change in financial standing, turnover and investments of an enterprise). The changes in the balance of the indicator were scaled in the figures such that the moment of interview (in figures the year 2000) was set at zero. The balance figure that describes the change during the past 12 months in relation to the moment of interview (in figures the year 1999) was assigned the value of its opposite number. The change expected to occur during the 12 months following the moment of interview (in figures the year 2001) is depicted by the value of the balance figure. In the Figures the trend-and-confidence indicator is shown weighted by the number of enterprises in the survey population and by turnover.

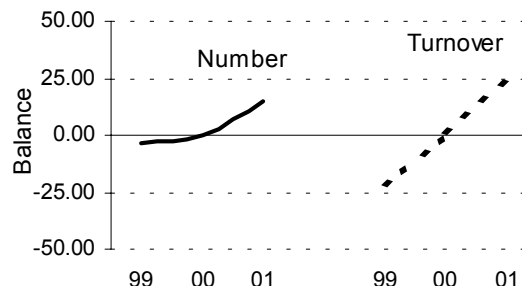
In regional presentations, the country was divided into Southern-Western and Northern-Eastern Finland. The former comprises the provinces of Southern and Western Finland, Åland included, the latter the provinces of Eastern Finland, Oulu and Lapland. Of the interviewed enterprises included in the sample, 192 were located in Southern-Western Finland and 64 in Northern-Eastern Finland.

## 3. RESULTS

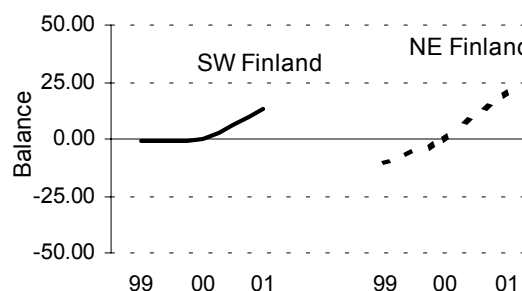
The trend-and-confidence indicator for commercial fishery showed that, taken as a whole, sectors had developed favourably during the last 12 months and would continue to do so in the future. Optimism in the

future was strong, especially when the results were weighted by the turnover of enterprises, which emphasised the opinions of big companies. (Figure 1).

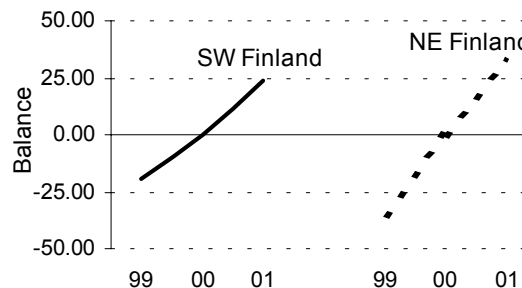
In the regional analysis, weighted by both the number of enterprises and turnover, enterprises in northern and eastern Finland were slightly more optimistic about the trend in their financial standing during the previous year than were enterprises in southern and western Finland. Future expectations, too, tended to be slightly more positive in northern and eastern than in southern and western Finland. (Figures 2 & 3).



**Figure 1.** The trend-and-confidence indicator for commercial fishery for 1999-2001 weighted by the *number* and *turnover* of enterprises.



**Figure 2.** The trend-and-confidence indicator for commercial fishery by region for 1999-2001 weighted by the *number* of enterprises.



**Figure 3.** The trend-and-confidence indicator for commercial fishery by region for 1999-2001 weighted by the *turnover* of enterprises.

The overall financial standing of export companies had improved during the last 12 months. Only in enterprises operating on the home market had financial standing remained the same as in the previous year on average, when the trend-and-confidence indicator was weighted by the number of enterprises. Both groups believed that the favourable trend would continue during the next 12 months. The indicator weighted by turnover was steadily rising for exporters as well as home market enterprises. (Figures 4 & 5).

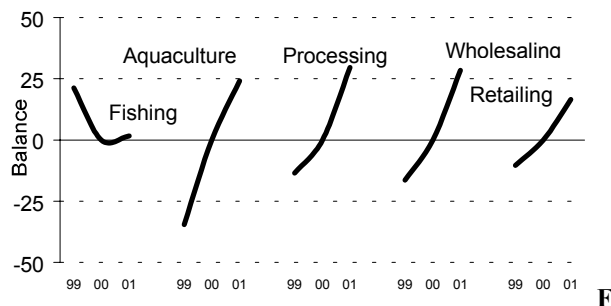


**Figure 4.** The trend-and-confidence indicator for export and home market enterprises for 1999-2001 weighted by the *number* of enterprises.

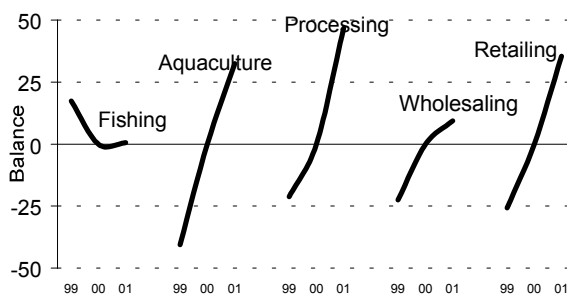


**Figure 5.** The trend-and-confidence indicator for export and home market enterprises for 1999-2001 weighted by the *turnover* of enterprises.

In the evaluation by sector, only fishing enterprises considered that their general financial standing had declined during the past 12 months. All the other sectors estimated that their trends had been upwards, when weighted by the number of enterprises and turnover. The sector with the best economic development was aquaculture. All the sectors, fishing excluded, considered that their financial standing would improve during the next 12 months; fishing enterprises expected little change in their situation. Large fish-processing companies were the most optimistic about an improvement in their financial standing, as their trend-and-confidence indicator weighted by turnover showed the highest expectation value. (Figures 6 & 7).



**Figure 6.** The trend-and-confidence indicator for commercial fishery by sectors for 1999-2001 weighted by the *number* of enterprises.



**Figure 7.** The trend-and-confidence indicator for commercial fishery by sectors for 1999-2001 weighted by the *turnover* of enterprises.

#### 4. DISCUSSION

Since the data collection was in full scale use for the first time, and it has an option to become a regular follow-up survey, a special attention was paid to reliability of the results and validity of the measurements. Use was made of the information on the structure of the survey population (e.g. turnover of enterprises) to plan the sampling and fixing of quotas appropriately. Coverage error was reduced by removing the overcoverage from the sample in conjunction with the interview. It was not possible to estimate the undercoverage for enterprises, but new enterprises at least were not on the register.

The nonresponse rate was low compared with interviews in general. On the other hand the bias caused by nonresponse could be reduced with the methods applied, i.e. stratification and calibration.

The amount of the sampling error was estimated by calculating 95% confidence intervals for the individual questions. The confidence intervals for the whole enterprise data were about  $\pm 5$  percentage points, depending on the question and response frequencies of different options.

The questions were formulated as they usually are in the common business surveys and their response options were simple. Moreover, the questions had been tested for performance in a pilot study, which reduced the possibility of errors in measurements. According to the interviewers, the respondents understood the questions well. In the computer-assisted telephone interview the responses were stored into a database direct, thus avoiding processing errors due to separate coding and recording.

In February 2000, the confidence towards coming 12 months in the Finnish fishery enterprises was encouraged. The only sector that had deteriorated during the past year was fishing, however the outlook of fishing for the coming year was more promising. The fishery industry's confidence reflected the overall positive economic trend during the past year and business outlook for the next year of the Finnish industry in general (cf. Statistics Finland 2000b, TT 2000).

Business surveys generally measure change. Of importance is not the individual results but the changes occurring between the measuring times. The present results are based on a single measuring time, which sets limits on the interpretation in terms of time or, in terms of correlation with external economic data. Note, too, that although business and consumer surveys are widely used to study the expectations of social phenomena, they are not prognoses as such but rather tools that help us estimate trends. The intention is to repeat the survey in 2001 at least.

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