

IXth IIFET Conference - TROMSO, NORWAY, 8 -11 July 1998

An analysis of seafood consumption survey methods in France.

Sophie Girard*, Catherine Mariojous**, Philippe Paquette***, Claude Wisner-Bourgeois**

*FIOM, Paris, France; **Institut National Agronomique Paris-Grignon, Paris, France; ***IFREMER, Service d'économie maritime, France

Abstract : The different statistical data sources available for seafood¹ consumption analysis in France belong to three types : the apparent consumption estimated on the basis of a balance between production and trade, used at national scale and for international comparison, the data in value published by the national Institute for economic statistics, aggregating food balance sheet, and economic results of inquiries about the activities of the branch industries, and the household consumption estimated through consumers' panels. A critical and historical analysis of the different available data series is presented, with focus on the major difficulties when interpreting and cross-checking the data (series breaking, nomenclature items, range of products or groups of products, conversion in equivalent gross weight). While seafood consumption in France has been expanding for many years, this development is somehow intricate and heterogeneous as shown by registration of socio-economic variables along with consumption data. Sociological approaches show that the seafood consumers show various motivation for seafood purchasing, including general trends (quick and easy preparation, dietetic concerns), but also specific motivation for fish. A particular attention is given to the difficulty in the assessment of the place of aquaculture products in the world of seafood, both for statistical evaluation and motivation inquiries.

KEY-WORDS : seafood, consumption, methods, analysis, France

INTRODUCTION

The assessment and the survey of the food consumption are essential purposes for various types of actors : economic actors, for the definition of their objectives and strategies in terms of production, processing types and marketing, governments, as a base for elaborating public politics related to alimentation, including agriculture and foreign trade, researchers in different disciplines, including economy, agronomy, sociology, nutrition, etc. This concern became accurate after the Second World War. During its first session in Quebec in 1945, the FAO Conference defined one of the tasks of the new international organisation with the following recommendation : "the development and the standardisation of inquiry methods about food consumption in order to obtain exact and comparable data...", and ordered a report on that subject (NORRIS 1950).

Any user of statistical data has been faced with the difficulty of choosing the data source. The choice of a source will take into account, not only the availability of long-term series, but also the mode of elaboration

and the constraints on use linked with them. The statistical data available for food consumption assessment are concerned by these difficulties, for several reasons :

- different methods and units are used for the assessment : food balance sheets giving apparent consumed quantities per capita, inquiries on consumers panels for the survey of household or out-of-home consumption, assessment of household consumption in value by aggregation of different sources in the national accounts,
- inside the same serie can appear some breaking, linked with changes in the methodology, making often difficult to interpret a trend on a long-term basis,
- the user will also face difficulties when comparing the series issued from different sources, and trying to explain the obvious differences between series concerning the same commodity.

As quoted by COMBRIS (1977), one must keep aware of the fact that the type of focused data varies broadly with the objective of the user. We can cite the very

¹ : the word "Seafood" is used here in the broadest meaning, including any food product issued from marine water and freshwater.

different examples of the general series elaborated by balance sheets, satisfying the economist, while the nutritionist will need very detailed figures on the daily intake of nutrients brought by a precise item, data issued from inquiries including the weighing of eaten food. Moreover, only detailed surveys, including the registration of socio-economic parameters along with the food consumption, will allow the analysis of the consumer attitude in his environment, and the interpretation of the differences observed between groups.

In the food consumption assessment, the study of seafood brings special difficulties, because of a relatively marginal situation explaining a poorly detailed survey, and because of the specific methodological difficulties : the great variety in the species, presentation and processing would make necessary to consider a lot of categories and conversion factors, which is rarely possible. Then, the user of statistical data concerning seafood consumption will be in a situation characterised by a relative abundance, but with strong constraints for the use of the data and the comparison between sources, as there are some important variations in methodology.

Our objective here is to describe the available sources for the assessment of seafood consumption, on a national basis in France, and at international level, and to insist on the possible uses and their limits. This analytical statement will be followed by two examples of seafood consumption assessment, one using a mixed method for studying a peculiar group, the farmed products, and one using a sociological approach. Altogether, these different approaches will allow a discussion about the available means for assessing seafood consumption.

1. THE STATISTICAL DATA SOURCES

1.1. The national data sources in France

The available statistical sources for seafood consumption assessment in France have two origins : those published by the National Institute for Statistics and Economic Studies (INSEE), as for any goods, and the data focused on seafood, published by FIOM, a public body in charge of fisheries industries and seafood market regulation, which is commissioned by the Ministry of Agriculture and Fisheries to compute fisheries statistics for yearly reports about production, foreign trade and consumption. After presenting briefly the data available from INSEE, we shall explain the methods used specifically for surveying seafood consumption, and their methodological limits.

→ *The INSEE annual publication about household consumption*

The National Institute for Statistics and Economic Studies (Institut National de la Statistique et des Etudes Economiques) publishes yearly a report presenting the

household consumption for all goods and services. Numerous sources are aggregated for the elaboration of these statistics : households surveys for the elaboration of the "families budget", foreign trade, statistics about industries activity, and others. Among the three series of statistical results, the most suitable for studying production, or markets is the one concerning the items. The data, available from 1970 to 1996, are expressed in value (French francs of current year or previous year), or index related to value or quantity or price, with a 100 basis in 1980. They include any type of supply : purchase, self-production, or others.

This statistical source has two main limits for a Fisheries economist. One is the poorly detailed nomenclature, considering only two seafood categories : fisheries products, preserved seafood. The other one is the lack of data in quantities. These data are obviously suitable for economists following the changes in the general pattern of the household consumption, and can bring interesting comparisons between sectors. But they do not fit the needs of studies focused on seafood consumption, except by an estimation of the value of the final consumption.

→ *The INSEE National Food Survey*

The National Food Survey has been conducted every year or every two years from 1965 to 1991 by the National Institute for Statistics and Economic Studies (INSEE). Based on a random sample of 10,000 households, the survey was conducted during 8 periods of 6 weeks, but only one week for each household, which is one of the main limit of the method. All the food purchased was recorded in value, quantity, and purchase place, and the self-produced food and the gifts considered. For seafood purchases, the survey considered three categories in quantity, six in value. Six socio-demographical criteria were used to present the data according to the sub-populations, and allowed detailed analysis. The interruption of this survey, for budget reasons, can be regarded as a real damage.

→ *The evaluation of seafood apparent consumption data*

The computation of apparent consumption using figures on supplies to the national market (production + imports - exports) raises methodological difficulties for the standardisation of series:

- series expressed as quantities : the quality of a homogeneous series depends on the reliability and stability of the existing statistical systems (statistics on fisheries and marine culture, customs statistics), and also depends on the type of conversion coefficients used to harmonise distinct series (raw products and processed products).
- series expressed as values : the problem of statistical consistency becomes more acute when a supplementary variable is introduced such as price (measured at the first sale level for production statistics and at the wholesale market level for foreign trade). This limits the economic relevance

of the indicator in each food balance sheet and means that it will not accurately reflect the final consumption figures.

For quantities, a series of apparent consumption figures were produced for the last twenty years converting the customs statistics on fillets and fishmeat into landed weights. The growing discrepancy between the raw series and the series that have been corrected through the application of conversion rates shows that, of total fish imports, filleted fish (fresh, frozen, and cured) have been growing in importance (Figure 1). The average per capita per annum consumption rate was about 20 kg in the beginning of the 1980s and now is levelling off at about 25 kg (Figure 2). There is a general upward trend on seafood consumption with the apparent consumption curve zigzagging, although there are some noteworthy peaks. In 1990, there was a peak that reflected a concurrent boost in the consumption of both domestic and imported products. But the increase in the national offer is partly connected to more accurate estimates of shellfish production. In 1993, and for a few years thereafter, consumption records showed a downward trend; the main culprit, however, can be traced essentially to the statistics (e.g. functional breakdown in customs declaration system).

Value-wise, the profile of the apparent consumption curve is highly price sensitive. Consumption rose at a smart pace until 1991, backed, as it was, by volume growth (Figure 3). As of 1992, drops in import prices and then in production costs drove apparent consumption downward. By way of comparison, the final consumption series, based on data from INSEE studies, provides a clearer picture of changes in demand for seafood during the last twenty years: the trend favours more elaborately processed products with a higher added value. Data show that variations in the prices of raw materials are rather well amortised at the final consumption level.

→ *The SECODIP panels survey on household seafood consumption*

The household seafood consumption is surveyed through a consumers panel, that was established as a tool for the short-term analysis of the market at the household consumption level (short-term evolution); it can be used to keep track of changes in the distribution of seafoods, and to play up the regional or socio-demographic factors impacting demand variables e.g. size of clientele, average consumption level. The private company SECODIP has been commissioned by FIOM to conduct this panel survey.

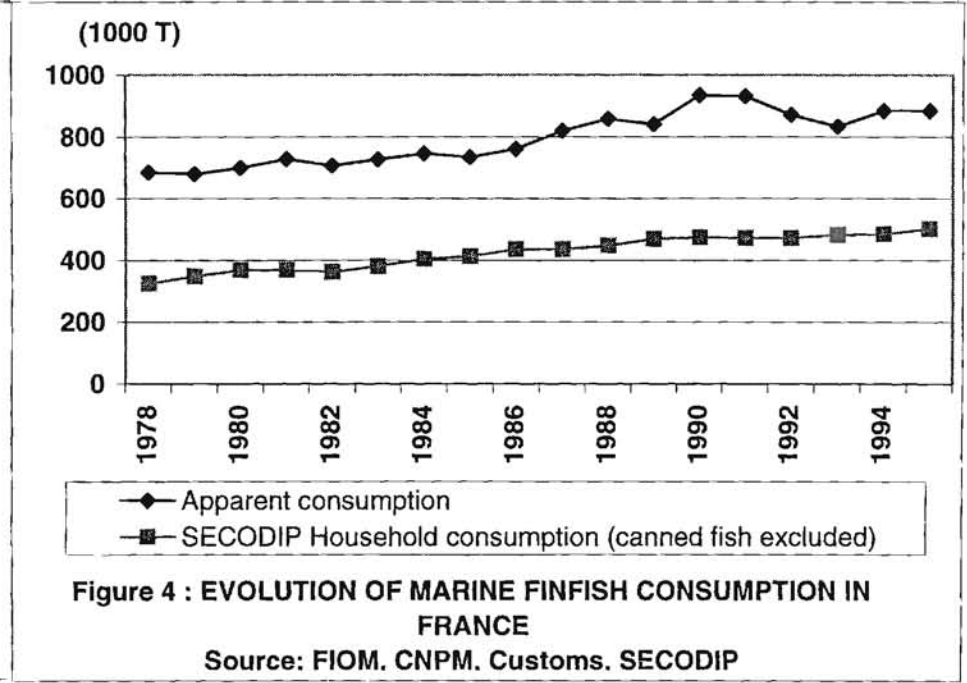
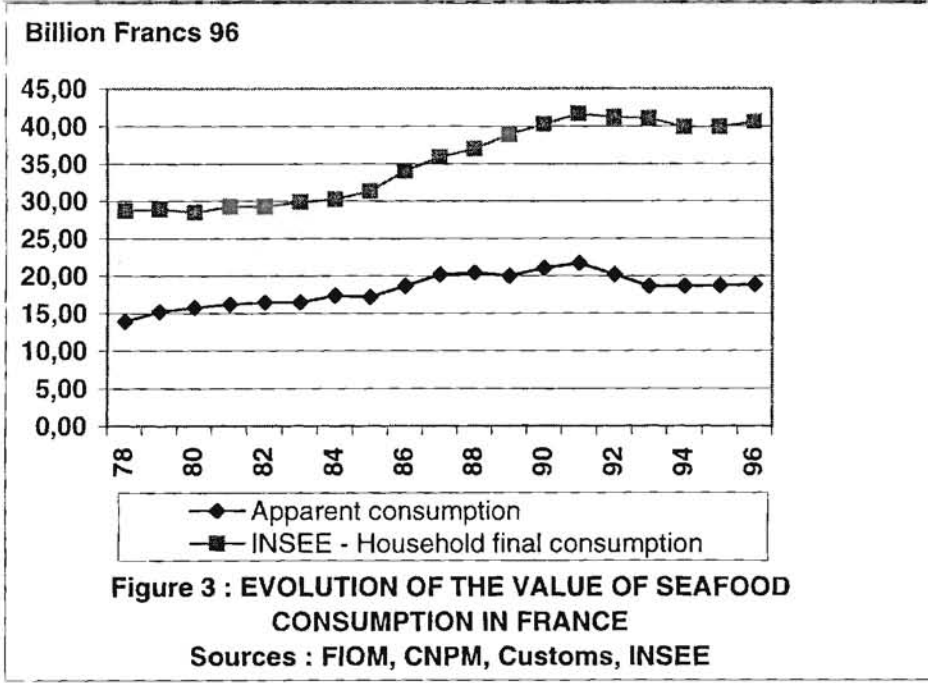
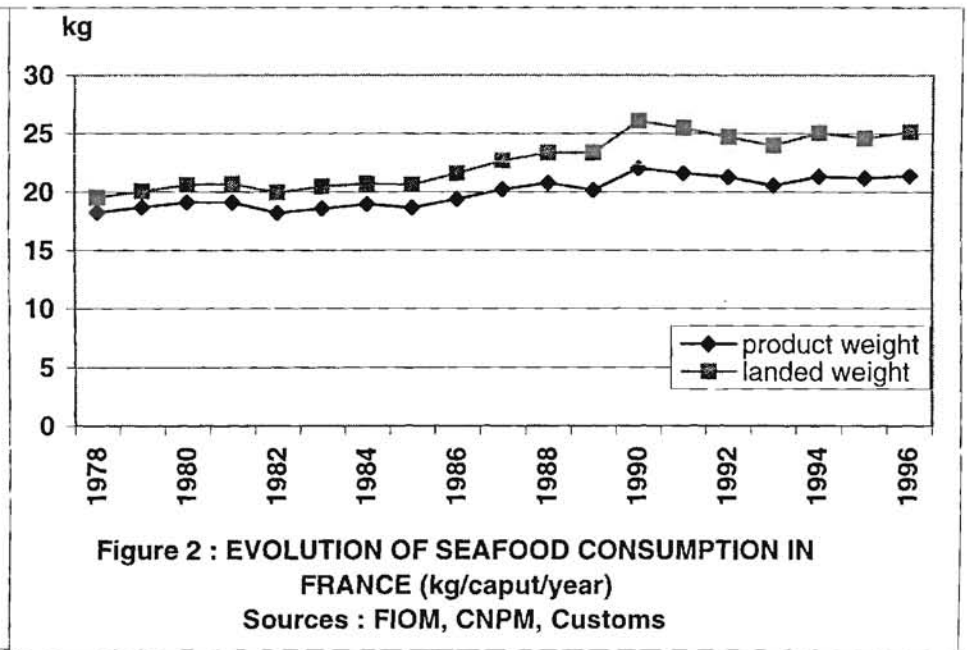
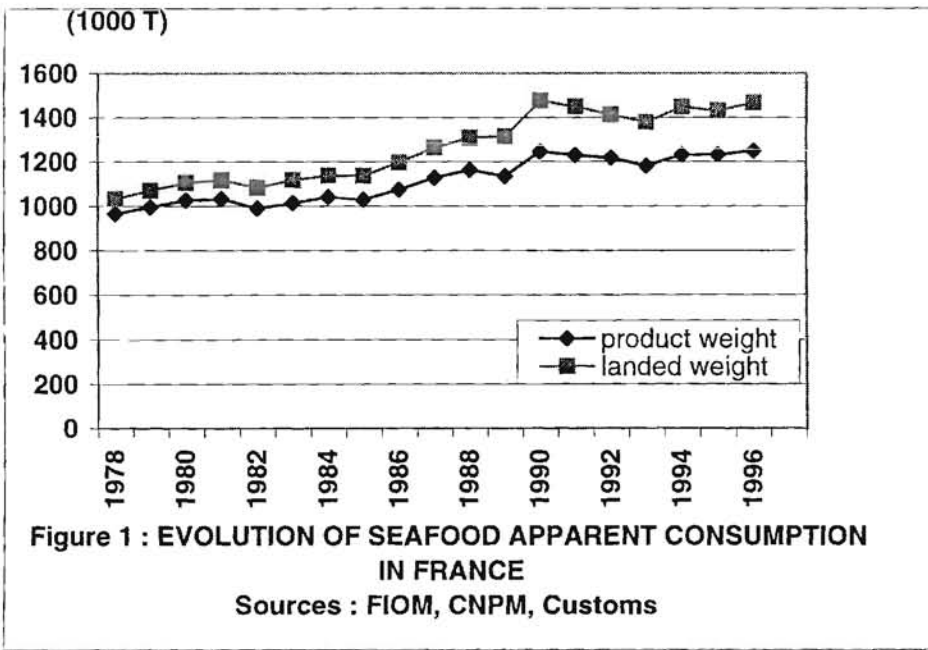
The consumers' panel is composed of a sample of about 4500 ordinary households (in the INSEE sense of the term) considered to be representative of the French population. Panelists' statements apply to total purchases intended for home consumption, regardless of the distribution circuit. This means that consumer

panels do not survey community, group, or student consumption. The home consumption market, as it is called, also excludes purchases that households make for out-of-home consumption, with the home being defined as the main residence.

Between 1978 and 1995, the panel functioned in a very steady, stable manner and its methodology hardly changed. The study gained in quality as new variables were considered and product nomenclature became more detailed. In the beginning, monitoring consumption mainly meant measuring quantities bought. Information on prices alone is not always complete enough to measure the household's total outlay for seafood. The field of the survey was gradually expanded. At the outset, it targeted the market for fresh and cured sea fish, as well as frozen seafood. Information was soon also provided on tinned fish, shellfish, crustaceans, and later on freshwater fish. It was only in 1991 that the study was extended to include pre-processed ready-to-eat fish dishes. The more general question is whether the consumer panel can react quickly enough to the fast growth potential of this sector and the development of new products in the market offer. It was noteworthy, moreover, that the panel was quite late in including the men-only households. This category, which has grown rapidly in France (1.5 million in 1980, 2.7 million in 1998) was only included in the panel's work in 1995.

The main change that SECODIP made was in the way purchases were recorded: in 1996 the questionnaire on paper was replaced by an automated product scanning system. The justification for this high-tech tool was that the surveyors could work more rationally and that a more efficient tool would improve the quality of information with more detailed data. The initial result was a complete breach between the 1978-1995 data series, and data compiled thereafter. Since monitoring the fresh foods market is more complex (for several reasons), this is where the impact was felt most strongly. The large number of species and products that are sold, and the lack of standardisation in fishery terms, cause great confusion among the buyers and jeopardise the clarity of records and statements.

Furthermore, buyers in traditional circuits (fish shops, etc.) still have a non-negligible, but difficult-to-assess, role in the fresh fish markets; panelists sometimes forget to record isolated purchases. This has led to the impression that, in retrospect, work on fresh seafood could be done better using the old method of purchases recording, i.e. weekly questionnaires, and that the former panel was essentially composed of households with more "traditional" buying habits. Market coverage by the new panel is more restrictive than that of the former panel. This especially applies to the shellfish market. As concerns oysters, the new panel argued to reduce the estimation of the percentage of oyster-eating households (from approximately 35% to 22%), and to



reduce also the estimation of average household consumption.

On the other hand, the scanning method seems suitable for surveying processed seafood with fixed weights and genecoded labelling; the coverage rate for household purchases is improving. This better coverage is partly due to the inclusion of men-only households in the panel, since they consume a lot of ready-to-eat or ready-to-cook products. The purchase recording method, in which barcodes are read automatically, is an efficient tool for detailed surveying of purchases of industrial products, and the increasing number of products proposed to buyers. For the fresh seafood market, however, the problem of the exact identification of products has still not been solved. More work needs to be done to find out how well the panel can represent the traditional consumers and distribution circuits.

The longest serie that can be built with the SECODIP data is for marine fish (fresh, frozen, cured). This serie can be compared with the estimation of apparent consumption (Figure 4). The obvious differences have several reasons : out-of-home consumption is not included in SECODIP series, and the SECODIP panel, as we explained, does not cover perfectly all types of population and purchases. A third reason is that canned fish was not included in the long-term serie, as it brings specific methodological difficulties. For 1995, we estimate the total marine fish purchases by households, to about 65 % of total apparent consumption. But we are not able, with the present SECODIP survey, to estimate, in the left 35 %, the part of out-of-home consumption, versus the uncovered part of household consumption.

As the INSEE food survey is not conducted any more, the SECODIP consumers panel survey is now the only source for short-term seafood consumption survey. The results are used for market surveys by FIOF and other bodies, and a summary is yearly sent to the French professional organisations. The data-base can also be used for specific studies, like the analysis published by OCA (Observatory of Food Consumption), issued from a computation of SECODIP data, on the distribution of the food quantities consumed in 1993 at home by households, with one chapter concerning seafood (COMBRIS et al., 1997).

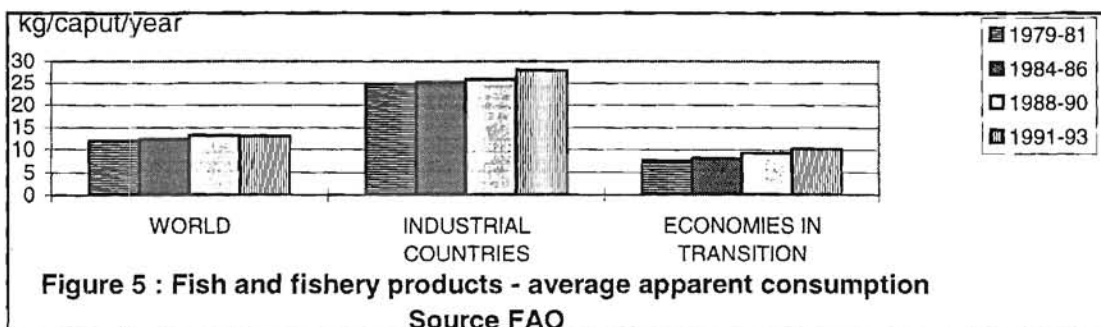
1.2. The international data sources

The present situation of the international statistical data sources is an impoverishment in the last years. Three main sources : FAO, OECD, and EUROSTAT, used to provide long-term series allowing international comparisons. Some years ago, EUROSTAT interrupted the survey of fish consumption from its statistical programme, and more recently also OECD, due to budget restrictions. EUROSTAT still mention fish in the general comparison of consumption between countries, based on an interesting notion, the "Standard purchasing power", as a common unit for the values of consumption in the different countries. Anyhow, we shall present OECD series, because they bring some interesting elements related to methodology. Also, in the past, FAO, OECD and EUROSTAT, under the aegis of a joint working group on statistics, used to compare systematically fish consumption statistics of relevant countries, which was an important opportunity to homogenise the data.

→ FAO : fish and fishery products average apparent consumption

FAO FIDI (Fishery Information, Data and Statistics Service) is responsible for supplying annual statistics of supply/utilisation accounts. The SUAs contain the estimates of supplies from different sources matched against estimates of different forms of utilisation of each product. The consumption statistics are derived from these data, apparent consumption statistical data are based on food balance sheets using production (excluding non human food uses), foreign trade, stocks changes. The data represent availability and not consumption, even expressed as quantity per capita.

The consumption data are published in detail in the FAO Fisheries Circular 821, with total seafood balance in live weight, the total food supply for eight groups of species in live weight, and the total food supply by products for ten groups of fresh or processed products, in product weight. The total seafood provisional balance, or average apparent consumption on a three-year basis, are published in the yearbook about Fisheries Commodities. These data allow the study of the overall trends on a long term basis, and a comparison of the availability of seafood in different countries or geopolitical groups. (Figure 5)



→ *OECD food consumption statistics*

OECD Agricultural Statistics have been publishing, by eight or ten years series gathered in 9 volumes dated 1968 to 1991, the food consumption statistics from 1954 to 1988 in the OECD countries. They are based on food balance sheets, and include four or five commodities of fish or fishery products, in product weight, and a summary table at the end, calculated as the sum or the previous data, and the conversion into total daily per capita calories, protein and fat intake in the country concerned. The data used for computation have been generally extracted from the national replies to the OECD annual questionnaire, and for the European Community countries, extensive uses has been made of EUROSTAT data.

These series allowed to study the partition of seafood consumption between commodities and their evolution on long-term basis, the comparison between countries and between food items. Unfortunately, OECD gave up the elaboration of this series after 1991, because of budget reduction and an increasing difficulty to collect the data.

→ *An example of comparison of different international sources*

The comparison of FAO and OECD consumption data for the most global categories shows important differences between the levels of the two sources (Figure 6). Several facts allow to explain them:

- FAO "fish and fishery products", computed as a food balance sheet, is expressed in Live Weight, while OECD "total fish and shellfish" is expressed in Product Weight, because it is computed as the sum of apparent consumption for 5 product groups,
- another source of difference is the under-estimation of the OECD "total fish and shellfish", because of lacking data for some groups.

Moreover, OECD and FAO consider different nomenclatures for fisheries products in their series of apparent consumption. The comparison (Table 1) shows some similarities, but also differences which are not understandable to the ordinary user of statistical reports.

OECD, France, 1988			FAO, France, average 1987-88		
Commodity	Computation method	Consumption (kg/caput/year)	Commodity	Computation method	Consumption (kg/caput/year)
Fish fresh, chilled or frozen	food balance sheet	11.4	Finfish fresh	food balance sheet	7.8
			Finfish frozen	idem	2.5
			Shellfish frozen	idem	0.5
			(total)	(sum)	(10.8)
Crustaceans and molluscs, fresh	food balance sheet	6.3	Shellfish fresh	food balance sheet	5.5
Fish, dried salted or smoked	food balance sheet	0.4	Finfish cured	food balance sheet	0.4
			Shellfish cured	idem	0
			(total)	(sum)	(0.4)
Canned fish	food balance sheet	3.1	Finfish canned	food balance sheet	2.6
Crustaceans and molluscs, canned	idem	0.5	Shellfish canned	idem	0.5
(total)	(sum)	(3.6)	(total)	(sum)	(3.1)
Total fish, molluscs and crustaceans (product weight)	sum of the sub-groups data	21.7	Total fish and fishery products food balance, live weight	food balance sheet	30.1

(...): calculated or mentioned by the authors

Table 1 : An example of comparison of seafood consumption data from OECD and FAO

2. A SPECIFIC ISSUE IN SEAFOOD CONSUMER SURVEY: THE CASE OF AQUACULTURE PRODUCTS

The aquaculture industry has been engaged by now in the same industrialisation pattern which is underway in agriculture. Consequently, the consumer demand has to be taken into account with much more accuracy than it used to be (KINNUCAN and WESSELS, 1997). Any evolution in aquaculture will be undertaken in the framework of the whole seafood system, from the producer to the consumer. Hence, it is very important

to have a good assessment of the consumption of aquaculture products inside the seafood market. Nevertheless most sources of statistical data about seafood do not mention the wild or farm raised origin of the products. As far as consumer panels are concerned, it is very difficult to ask this question because most consumers have no access to this type of information. Moreover, there is very little indication about the origin of seafood on the selling spots, as well by traditional fishmongers or by supermarkets. The distributors themselves are very seldom aware of the origin of their products and are very reluctant to speak

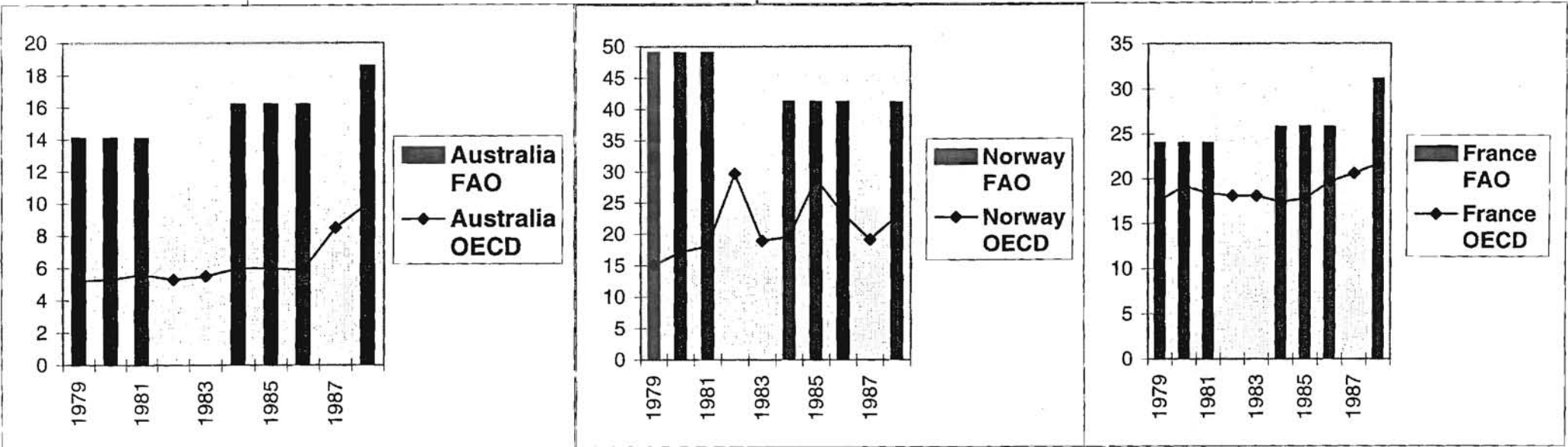
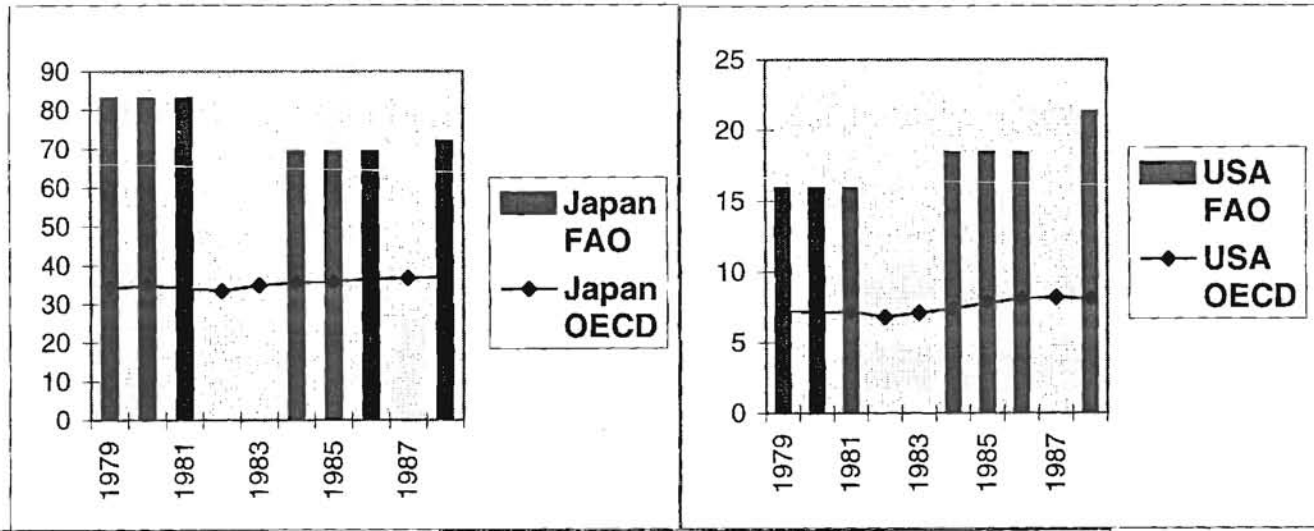


Figure 6 : Estimation of total seafood consumption from two sources
 OECD : "Total fish and shellfish" ("Total Fish" for Japan and USA), in Food Consumption statistics
 FAO : Fish and fishery products, average apparent consumption on 3 years

openly about farm raising, for fear of a bad image of intensive aquaculture. Indeed, as it has been shown in a study by COPA COGECA in 1996, European consumers' attitude towards farming is rather ambiguous. On the one hand, they think that farm raised fish is a good product, but on the other hand they think that wild fish is more tasty. Moreover, it turns out that a price premium would usually be given to wild fish, especially in the upscale market segment.

At the present time, the best method to assess the aquaculture consumption is the calculation of apparent consumption, which requires a lot of input of expert knowledge. Indeed, some criteria may help to classify products in the fisheries sector or the aquaculture sector. These criteria are based on the species and on the country of origine. For salmon for instance, all the production of *Salmo salar* coming from Norway is farmed. It is the same case for imports of shrimps *Penaeus vannamei* from Ecuador. Moreover, all the

methodological reserves which have been formulated in the former chapter about seafood consumption assessment have to be taken into account in the case of aquaculture. In particular, some amphibiotic species like salmon may be classified either with freshwater fish, or with sea fish according to the source of data.

Assessment of aquaculture contribution to the French total seafood production

The contribution of aquaculture to the French seafood production has been increasing for the last ten years, from 27% to 33% in volume, and from 23% to 37% in value (Table 2). In the meantime, the total amount of seafood production has been up by 17% only and its value has been stable because of a decrease of the average price of landings. So, aquaculture has widely contributed to the stabilisation of the total value of seafood in France despite the decrease of the value of landings.

	in VOLUME (tonnes)			in VALUE (million US\$)*		
	1985	1989	1996	1985	1989	1996
Fisheries	539 419	557 512	589 991	952	1 095	936
Aquaculture	204 045	238 210	285 218	286	353	545
TOTAL	743 464	795 722	875 209	1 237	1 448	1 481
% aquaculture / total	27%	30%	33%	23%	24%	37%

Source: CNPM, FIOM, IFREMER

* 1 US\$ = 6 FF

Table 2 : Evolution of total French seafood production and of aquaculture share

Assesment of the apparent consumption of farm raised seafood products in France and other countries

On the basis of production and trade data, the apparent consumption of aquaculture products has been estimated for France. It amounts to 450 000 tonnes (equivalent live weight) and 1 100 million US\$ in 1996. So, the contribution of aquaculture to seafood consumption in France may be assessed at 35% as well in volume than in value. On the same basis, French per capita consumption of farmed raised products is assessed at 7.5 kg per year. As far as aquaculture is taken into account, the rate of market coverage is very different from one species to another. It is widely above 100% for seabass/seabream (179%) and around 100% for oyster, trout and turbot. On the contrary, it is as low as 2% for scallops, 3% for salmon and 5% for shrimps which are products for which the demand is particularly high in France. Mussels are in intermediate position with a market coverage ratio of 57%.

France is one of the countries where aquaculture has the largest market share. A comparison with Japan would be interesting but no data were available to the authors. In the United States, average per capita fish and seafood consumption has remained relatively flat over the last decade, at around seven and half kilo, roughly 1 to 2 kilo less than turkey consumption. However, over this time period, the source of seafood

products has been shifting away from wild harvest and toward aquaculture. In 1997, US production of processed catfish products was close to 500g per capita, imports of farm-raised shrimp were likely over 500 g per capita and the combination of farm-raised salmon, trout, tilapia, crawfish and other aquaculture products probably added another half kilo. With about 20% of US fish and shellfish consumption now being farm-raised, aquaculture is becoming a recognised segment of the food sector in the United States (HARVEY, 1998).

Analysis of French fish consumption data in the aim of introducing new aquaculture species

The increasing market share of super/hypermarkets in European seafood distribution is a very important issue for aquaculture development. Indeed, marine fish farming has been focusing so far on the market for fresh seafood because of high production costs. Now, thanks to their good equipment in fresh food counters, super/hypermarkets have proved to have positive effects on fresh fish sales in country or regions where fresh fish consumption was traditionally low. The counterpart of this opportunity is the obligation to have regard for the specific requirements given by the supermarkets. These requirements turn on supply regularity, availability of a range of products and homogeneity of characteristics for each type of product. When looking for a new species or for a new product, it

has to be decided according to both technical and marketing parameters. The use of marketing techniques such as product differentiation or market segmentation needs to be based on a complete multi-criteria seafood market analysis. The first step of such an analysis is the survey of consumption data with the help of consumers panels. It has to be noticed also that the increasing consumption of fresh fish in France is due to steaks and fillets rather than to whole fish. Fresh steaks and fillets fish have reached a 60% market share in super/hypermarkets in 1996 but only 45% in traditional outlets (FIOM, 1997).

On the French market, there is a wide range of retail price for whole fresh fish with quite homogeneous quantities from less than 4.0 US\$/kg to more than 11.0 US/kg (Table 3). Because of the continuous price decrease of salmon, there is now a first pick around 5.5 US\$/kg, under the average price for whole fresh fish which is now around 8.0 US/kg. But there is still a strong demand for more expensive fish between 11.0

and 13.0 US\$/kg, like sole, turbot, anglerfish and seabass. As for steaks and fillets, their distribution is much more concentrated in the range 9.0 to 11.0 US\$/kg where most of the popular species are mixed. It looks like whether the name of the species was less important for steaks and fillets than for whole fish, since on the one hand there is a limited number of available species and on the other hand there is very few price differentiation between species. So, there seems to be a large market potential for aquaculture fish on the French market if this new species can be delivered in steaks and fillets at a retail price around 12.0 US\$/kg, which means a regular production of fish above 800 g at an ex-farm price under 4.0 US\$/kg. One of the main advantages to target this type of market is that an increase in production due to aquaculture would not have a major effect on the total supply in this category of product and would not lead to such a price crash as it has been observed for seabass and seabream in the Mediterranean area (PAQUOTTE, 1998).

WHOLE FISH	US\$/kg	volume (t)	species
	<4	11 684	herring, mackerel, sardine
	4 to 6	24 678	salmon, whiting, plaice, trout
	6 to 9	12 006	cod, carp, gurnard, saithe, lemon sole, cat shark
	9 to 11	7 515	sparids, ling, hake
	>11	13 740	seabass, anglerfish, goatfish, sole, turbot
STEAKS & FILLETS	US\$/kg	volume (t)	species
	<4	0	
	4 to 6	0	
	6 to 9	18 329	saithe, ling, cat shark
	9 to 11	59 815	cod, whiting, hake, salmon, trout, tuna, skate
	>11	6 975	lemon sole, anglerfish, haddock, deep sea fish

(1 US\$ = 6 FF)

Table 3 : Distribution of fresh fish consumption per price categories in France in 1996

3. A MICRO-SOCIOLOGICAL APPROACH TO CONSUMER ATTITUDES TOWARDS SEAFOOD

Statistics, averages, tables and charts paint a picture of seafood consumption in France. But, behind the data and statistical analyses there are a multitude of individual consumers making daily choices about the foods they eat. We deliberately chose to change the scale of observation and conduct an exploratory micro-sociological survey with the aim of situating seafood consumption in the context of contemporary attitudes and eating habits. Our objective is to raise new issues.

3.1. Presentation of methodology

Therefore, we conducted a preliminary survey in the greater Paris area, which is one of the three regions in France where the consumption of seafood is the highest. The survey sample covers only 16 households

representing different age groups, family structures and occupational categories. Each household agreed to write down everything that each member of the household ate during one week in March 1998. Then, they answered questions in an interview lasting for about an hour. The questions dealt with how choices were made, and their perceptions of seafood. The observation of eating at meals and between meals for a whole week addressed preliminary questions, which are : what is the place of seafood in today's diet ? Do meals still begin with starters ? Is a protein still essential for a main course as a rule ? What other foods are rivals to seafood in the daily menu ? We paid particular attention to the individual eating patterns in each household, noting how many meals were eaten away from home, especially the midday meal, where each member of the household eats something different, and

whether all members ate the same thing or had individual menus during family meals.

The interviews were also used to identify differences in eating patterns that would not show up in one week of observations, and to discuss the perceptions and images associated with food in general and meat in particular.

3.2. Results

The preliminary survey revealed three categories of eaters that are distinguished by the structure of their diet and their meals. The categories correspond to different age groups and household structures. They differ according to their nutritional awareness, cooking skills, time available for meal preparation and the way they use this time. The different categories give more or less importance to the animal protein in their diet and to the convenience of the products they consume, preferring either processed foods or fresh, uncooked products. In spite of this diversity, some broad characteristics are found in all three categories of households.

"Traditional Eaters"

The first category includes middle-aged or retired couples whose diet is in line with standard French eating habits : regular meals with an emphasis on serving full meals that usually include a starter, a protein-based main course with vegetables (13 or 14 meals out of 14 weekly meals), followed by one or two desserts (dairy and/or fruit). Meals are sometimes less elaborate, for example, on a particularly busy day when lunch may be just a sandwich, or when a woman has a meal at home on her own. Eating between meals is rare. In this category, nearly half of the households eat as much seafood as meat (excluding delicatessen meats). Retirees or women having lunch at home alone often take the opportunity to eat seafood. Women eating alone are just as content to have cheese as their main course.

The remaining households in this category are bigger meat-eaters. At most meals, every member of the household eats the same thing and the menu is geared to the tastes of men and children, who seem to prefer meat.

Overall, meals comprise a starter, which is essentially a soup or a salad. Only three starters out of the 65 observed contained seafood.

All of the people in this category are concerned about their diet and try to eat right. Fish, along with fruit, vegetables and dairy products, is seen as being "healthy food." Meat-eating is more a matter of enjoying the taste. This means that seafood may be a substitute for meat in meal patterns, but it is not in the same dietary class.

Women have the cooking skills. When they are pressed for time, they may buy frozen foods to cope with a busy schedule, but they also freeze fish bought fresh and they cook foods in advance and freeze them for serving later in the week.

Fresh fish is seen as good, healthy and tasty, even though some women admit that their reservations about the quality of industrially frozen fish are more a matter of prejudice than thoughtful judgement.

"Nibblers and Snackers"

At the opposite extreme are people whose diets are rather chaotic, or else extremely simple. These are often people who live alone (at all ages) or very young student couples.

Lack of time, and possibly cooking skills, may explain the improvised nature of their eating habits. For the elderly, attitudes may be determined by a lack of interest in food or thrift. Unlike the first category, this category only eats one to three full meals per week. For the youngest, meals eaten in the lunchroom at school or work or meals eaten during visit to the parents' home are occasions to return to normal habits.

The people in this category eat little meat and little seafood. Young people eat mainly delicatessen meats, cheese, sandwiches and pizzas, none of which require any preparation. Seafood is eaten in the form of smoked salmon, tarama, and tinned fish. The elderly eat a bit more fresh fish. These eaters are nutritionally aware, but don't often put their knowledge into practice. Even though thrift and lack of time for cooking encourage the consumption of processed foods, fresh fish is generally more positively perceived than frozen, tinned or ready-to-eat foods. These are not necessarily judgements based on stereotypes since they are often associated with actual experiences of eating fresh fish during seaside holidays or during a childhood spent in a maritime country such as Greece, the Baltic States.

"Careful Eaters"

The third category lies between the other two. It covers young couples in their late twenties, and thirty-something couples with children.

Most of their meals include a main course, with meat being more frequent than seafood. But pasta with cheese, and dishes made with grains and vegetables also play a part. Careful eaters are less likely than "traditional eaters" to begin their meals with starters and when they do, the starters are mainly made with vegetables.

This category has a smaller budget than the other two as they are often just starting out on their careers or couples living on one paycheque. They are also less well-equipped and do not have microwave ovens in many cases. Frozen foods are eaten not as a matter of choice, but because there isn't time to shop or cook.

Like the eaters in the first category, they are aware of nutritional issues and try to eat right.

Nevertheless, this category of young people is more health-conscious than either of the other two. They are wary about the cold chain for frozen foods and distrust processed foods, which they associate with preservatives, additives and poorer quality: *"whenever there's something man-made about food, I don't trust it completely."*

Common characteristics

In spite of these differences, some common points are found in all three categories:

- There may be some men who like seafood, but the majority of eaters with a taste for it are women. The amount of seafood in the family meals depends on whether women cater to their family's tastes or impose their own.

As fewer meals are eaten together, women have more opportunities to eat seafood.

- Nearly everyone associates seafood, and fish in particular, with the idea of freshness. Seafood is put in the same dietary class as dairy products, fruit and vegetables. They are seen as fresh products that are healthy to eat. Meat is not in the same class, since meat-eating is seen as a matter of taste and enjoyment. Meat is also seen as "heavy" and harder to digest.

The notion of freshness is a wider one that should be examined in specific research. For some, freshness is associated with a feeling of lightness, as opposed to heaviness. Seafood is preferred in summer, and meat, particularly when it is cooked in a sauce, is seen as a winter dish. Freshness symbolises "real" fish, like the fish eaten during childhood holidays at the seaside. Fresh fish is associated with happy memories for consumers. Freshness is seen in opposition to processing and to the idea that the more steps there are in the transition from the place of production to the place of consumption, the more the product loses its unique qualities and nutritional value, and the more likely it is to contain additives or to go bad.

- In some cases, attitudes towards fish are the same as towards other animal products. Some people find whole fish repellent since it resembles the live animal. They do not want to see the head and the eyes and prefer to eat less recognisable pieces of fish. Others feel that pre-cut pieces do not let the consumer assess the criteria for freshness in a fish, such as the look of the eyes, the scales and the colour of the gills.

The results of this exploratory micro-sociological survey are corroborated by the analytical results of a larger quantitative survey about fresh (Anon., 1997). But the general approach we choose here, including eating patterns and the different classes of perception for seafood, may be a way to understand why, in France, seafood cannot be considered as a complete substitute of meat.

4. DISCUSSION

In our analysis of the available statistical data for seafood consumption, we have been focusing on the long-term series, and have found various limitations created by the elaboration methods themselves : series

breaking caused by necessary changes in the methodology , dropping of series caused by reduction of budget. The other limitations are obviously caused by the gap between the complexity of the seafood sector, and the limited means that can possibly be used for long-term surveys by countries or international bodies, that consider a reduced number of categories. The third type of difficulty is caused by the non-standardisation of the methods between different sources inside France, and, also, at the international level. We also found a difficulty rarely cited in methodological analysis : the loss of memory linked with the turn-over of human operators in charge of statistics elaboration. When we tried to obtain explanations from the operators in different public bodies, it appeared that, apart of important methodological changes in the elaboration of series, there are decisions taken in the current management of statistical data, which are sometimes not recorded, nor transmitted.

We illustrated, through the comparison between OECD and FAO data, a specific difficulty of seafood for the users of consumption statistics. It is to know what presentation of the fish the data relate to, and what is the considered weight unit: live weight, landed weight, and product weight. Because of the wide range of seafood presentations, landed weight is the most uncertain notion in statistics. The standardisation of the conversion coefficients used from landed weight to live weight (FAO 1992) is still a very delicate methodological question. A study ordered by the European Commission (Anon., 1996) recently focused on the comparison of the conversion coefficients used by the Members Countries, and proposed a method for standardisation.

The present descriptive inventory can be regarded as a first step for studying the data sources available for seafood consumption. An important work would be necessary for exploiting these seafood consumption series, like it has been done by POTHERAT (1997) in a thorough analysis of the changes in the consumption patterns of meats and fresh fish, using the INSEE food survey and the SECODIP panel survey, and pointing at the methodological limits of the data sources.

Another way of elaborating information about seafood consumption is, indeed, the short-term surveys focused on markets. As shown by ROHEIM WESSELS and ANDERSON (1992) in their review, " the last decade has seen a surge in the number and variety of marketing analyses of fisheries products". They provide usually a rich and detailed view of a specific market in a country on a short period of time, going much deeper than a long-term survey can do, and allowing econometric analysis on the socio-economic factors explaining the differences observed in the demand. But long-term series stay indispensable, anyway, to situate one peculiar product consumption in the general trends.

We chose to present here different approaches in order to illustrate the possible tools for the study of seafood consumption. Once the possibilities offered by econometric analysis of statistics have been completely used, the sociological approach appears to us

interesting for prospective investigation, and also to interpret some evolution or breaches showed by long term series, or to investigate the behaviour of consumers towards differences which are not considered by statistics, like the quality of seafood.

References

- Anonymous, 1996 - Etude comparative des coefficients de conversion utilisés pour estimer le poids vif des captures des flottilles de pêche de l'Union (*Comparative study of the conversion coefficients used for estimating the live weight of the Fisheries landings in EU*) - COFREPECHE, Commission CE DG XIV, dec. 96
- Anonymous, 1997 - Attitudes et perceptions des consommateurs à l'égard du poisson frais. - *Etude G3 pour FIOM*, février 97, 67 p.
- CHAMBOLLE M., VOLATIER J.L., COMBRIS P., 1995 - L'Observatoire des Consommations Alimentaires : objectifs, méthodes et réalisations, *Cahiers Nutrition & Diététique*, 30, 6 379-386
- COMBRIS P., 1977 - La consommation alimentaire : objectifs et méthodes des enquêtes, les sources disponibles et leur utilisation, INRA, 34 p.
- COMBRIS P., BERTAIL P., BOIZOT C, 1997 - La consommation alimentaire en 1993: distribution des quantités consommées à domicile, *Observatoire des Consommations Alimentaires*, INRA, sept.97, 255 p.
- COPA-COGECA, 1996 - Study of behaviors and attitudes of the European consumers towards farmed fish, for Commission CE DG XIV, July 96
- FAO, 1992 - Conversion factors; landed weight to live weight, FAO Fisheries Circular 847,
- FAO, 1996- Fish and Fishery products- World Apparent Consumption (1961-1993), FAO Fisheries Circular No. 821 (Rev.3) -
- FIOM, CNPM, 1981 - 1996 - Série : Rapport sur la production des pêches maritimes
- FIOM, 1981 - 1996 - Série : Rapport sur le commerce extérieur des produits de la mer
- HARVEY D., 1998 - 1997 Aquaculture outlook, *Economic Research Service, U.S. Department of Agriculture*, 7p.
- INSEE, Consommation et lieux d'achat des produits alimentaires, *Collections de l'INSEE, série Ménages*, 1965 à 1991
- INSEE, 1995 - 35 ans de consommation des ménages, *série INSEE Résultats*, n°378-379, *Consommation et modes de vie*, n°69-70,
- KINNUCAN H. W., WESSELS C. R., 1997 - Marketing research paradigms for aquaculture. *Aquaculture Economics and Management*, 1.1: 73-86.
- NORRIS T., 1950 - Enquêtes alimentaires, techniques et interprétations, *Etudes de nutrition de la FAO*, n°4, 114 p.
- PAQUOTTE P., 1998 - New species in Mediterranean aquaculture : is it an answer to the market demand for differentiated products ?, *International Symposium on new species for Mediterranean aquaculture*, Alghero, Italy, Apr. 22-24 1998
- POTHERAT C., 1997 - La consommation française de produits carnés et de poissons au cours des trente dernières années : changements et ruptures des achats en vue de la consommation à domicile, *Thèse de doctorat de l'INA PG*, INRA-OFIVAL-UNIGRAINS, 139 p. + tables & figures + annexes 149 p.
- ROHEIM WESSELS C, ANDERSON J.L, 1992 - Innovations and progress in seafood demand and market analysis. *Marine Resource Economics*, Volume 7, pp. 209-228
- SECODIP, 1978-1996 - La consommation des produits de la mer