

Seafood Processing Methodology Report



Introduction

The seafood processing sector is an important part of the seafood value chain. According to the European Commission 2018 Factsheet¹, the UK seafood processing sector is estimated to be one of the largest in Europe in terms of employment and turnover.

This methodology report presents the data collection and estimation procedure methodologies used by Seafish to report on the size, structure and economic performance of the UK seafood processing industry.

This report supports Cutting Edge magazine and the Processing Enquiry Tool in Tableau. Data published in these outputs come from the Seafish seafood processing sector biennial census and annual financial survey. Data is collected through primary research conducted by Seafish Economics. The most recent census took place at the end of 2018. The most recent financial survey was conducted in early 2019 and data refers to the 2017² financial year³.

The Seafish processing sector economics work programme and supporting research have two main aims. The first is to provide accurate, up-to-date economic data and high-quality analyses and commentary to inform business decisions, policy discussions, and further research, where appropriate. Stakeholders in this work include: the UK seafood processing industry, UK Government, Marine Management Organisation, Marine Scotland, other public institutions and researchers in the UK and EU.

The second is to enable the UK government to meet its obligations under the EU data collection framework EC Decision 2008/949 pertaining to fish processing enterprises.

Please be aware that all data collected by Seafish are treated with the strictest confidentiality and no individual sites or company records are disclosed. Confidentiality checks have been made so that no individual businesses can be identified in Seafish publications.

¹ Facts and figures on the common fisheries policy: Basic statistical data, 2018 edition. European Commission.

https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pcp en.pdf

² 2017 data preliminary.

³ Data must cover at least six months of the relevant year e.g. financial accounts must cover at least 6 months of 2017 to be counted as 2017 financial data.



Data collection

Scope

In scope for seafood processing data collection are all majority seafood processing businesses in the UK. Majority seafood processing businesses are defined as those that self-report 50 percent or more of turnover generated by seafood processing activity as opposed to wholesaling, retailing, importing, exporting, etc.

Prior to the 2018 census the Channel Islands and the Isle of Man were not in scope. In 2018, Isle of Man processors were included for the first time. Seafish has not identified any majority seafood processing businesses in the Channel Islands. Three majority seafood processors were identified on the Isle of Man in 2018 and have been grouped with the "North England" region for reporting purposes.

As a result of limiting the scope of this study to majority processors, there is a clear industrial definition being applied. Please note that Seafish processing sector estimates are not directly comparable to ONS annual business survey statistics due to differences in the definition of a seafood processing business.

Census

Seafish conducts a biennial census of the UK seafood processing industry. During the census we contact every business we think may be processing seafood in the UK. The starting contact list is informed by previous censuses, the expert knowledge of Seafish staff, and the Food Standards Agency's list of food processing companies with a licence to process seafood.

Most interviews are conducted over the phone. Some, more in depth interviews, are carried out in person. Census data is collected at the site level to enable analysis of regional processing activity. During interviews researchers first identify whether a business is a majority seafood processing site based on our definition. Only those identified as majority seafood processors are asked to provide further information about their business activity. This information includes employment levels, type of processing activity undertaken and the type of species being processed. At present no financial details are requested during the census. The 2018 census questionnaire can be found in Appendix B.

In previous years the census took place during the summer (July-August); however due to other data collection requirements the 2018 census took place at the end of the year (November-December).



Participation in the survey is entirely voluntary in the UK. In the event that we are able to contact a business but they will not provide data we will use previous census data (if available) combined with our own expertise to create estimates. If we cannot contact a company which is reported to be trading but for which we have no previous census data, we estimate the full time equivalent (FTE) jobs for the reference year based on a combination of Seafish expertise and other available sources such as published accounts or data from a relevant trade association.

Census data is stored in a secure Seafish database at the site (unit) level. Operational data are also stored and collected as part of the census (e.g. whether the site has changed its name, address, company ownership, contact details, etc.). These data are used to update the site address (if moved); site name (if changed); company ownership of the site for the relevant year (if changed), etc. in the database.

Any new sites identified in the 2018 census that may have existed, but were not identified during previous censuses, are only included in the industry numbers for 2018 (despite existing in previous years). Future improvements in methods will aim to address this limitation.

Financial Survey

The processing financial survey is carried out annually in February-March. Every company identified as a majority seafood processor in the most recent census is invited to complete the Seafish financial survey form or supply a copy of their financial accounts. Multisite companies⁴ with at least one majority seafood processing site are asked to submit financial information. These accounts are seen as the most reliable data source for estimating the economic performance of the sector. The financial survey form for 2017 can be found in Appendix C.

Financial data is provided by a sample of majority seafood processing companies each year. The financial survey is a census requesting all companies identified in the population to provide their information. Involvement in the survey is voluntary. As such it involves a degree of self-selection and due to the low response rate could be classified as a non-probability sample survey. Seafish financial survey data are supplemented with data from published financial accounts of seafood processing businesses available from Companies House (covering at least six months of the relevant year). A high percentage of the largest processing companies in terms of turnover are included in the final sample each year due to the availability of data from these published financial accounts.

⁴ In 2018, 16 multisite companies were identified through the census.



Due to expected low response rates from previous experience, sample targets are set at 10 percent or three companies per segment, whichever is greater. Segments are based on number of FTE jobs (FTE band). The four segments are: 1-10 FTEs, 11-50 FTEs, 51-250 FTEs, and 250+ FTEs. Segments and sample rates for each financial survey 2014-2017 are provided in Appendix D.

Estimation procedures⁵

Census data

Number of FTE jobs is estimated based on numbers of full time, part time, and seasonal staff at the time of the census (snapshot in time).

Censuses prior to 2018 were carried out at the end of summer (July - August), while the 2018 census was carried out at the end of the year (November - December). Depending on the type of processing activity, employment can vary considerably during the year and may partially explain changes in FTE estimates between the 2016 and 2018 census. In the lead up to Christmas, for example, some processors may have employed more seasonal staff.

As the census is conducted each second year, number of sites and FTE jobs are estimated for non-census years as an average of the values given in the preceding and subsequent censuses. For FTE jobs this is taken as a simple average of the two years. For number of sites, if a site exists in one census but not the next census the site is given a weight of one half in the non-census year and this is taken into account when estimating number of sites in that non-census year.

Sites may exit and re-join the population of majority seafood processors from census to census if annual turnover oscillates above and below 50 percent from year to year.

Financial data

R software for statistical computing is used to create a procedure to produce processing financial estimates. It contains a number of data transformations, checks and adjustments needed to ensure as comprehensive a dataset as possible. Only

⁵ Continuing and significant improvements in data collection, management, estimation procedures and increasing the robustness of definitions mean that direct comparisons with data for earlier years may not always be possible, even where seemingly comparable figures have been previously published. However, general trends are believed to be reflective of actual business activity.



data for companies in scope are kept, e.g. companies owning at least one majority seafood processing site.

In some cases, survey returns are only partially completed, meaning that data for all variables for all participating companies are not always comprehensive. In certain cases, entire observations are dropped (e.g. if a company does not report turnover, which is crucial for headline figures and estimations), while in others, this is accepted (e.g. if a company has provided turnover data but no raw material cost data). In clearly defined cases missing financial variables are estimated for those non-responses based on other similar companies' information provided.

Where both Financial Survey and published accounts data are available for particular variables, the officially published figures supersede survey data. The merging of Financial Survey and published accounts data is supplemented by extensive checks to ensure compatibility in terms of the variable definitions (for example, the Financial Survey variable 'debt' is equivalent to the sum of short-term and long-term debt from the published accounts).

Once the financial datasets are merged and definitions harmonised, each of the financial variables is estimated for all companies not in the merged sample.

The sample is split into 4 FTE size bands or segments defined by employment (micro enterprise, small to medium enterprise, medium to large enterprise or large enterprise). For each specific size band a per-FTE average at the company level is calculated. The per-FTE average is applied to companies not in the sample. This is done independently for each financial variable estimated and is based on the assumption that financial performance is linked to employment. Company data is then allocated to the respective owned site(s). For companies with multiple sites this is done according to each site's proportion of the company's total FTE jobs.

The resulting dataset contains all census and financial data from all sources, including financial estimates, at the site level. This approach is used, as it enables analysis of financial data by region, type of processing, fish type category and other site characteristics (not applicable at the company level for multi-site companies).

Data limitations

Among the limitations of the approach are the relatively simplistic estimation of financials on a per-FTE basis and equally the allocation of company-level financial data to sites in scope, purely based on seafood processing FTEs identified as part of the census.



Other limitations include:

- sample bias arising from low response rates and self-selection and the fact that only accounts for larger companies are publicly available;
- in some company size bands, turnover has a weak relationship with number of FTE jobs and the difference in levels of productivity when specialising in different types of processing is not taken into account;
- there is a different sample of companies for the basis of estimation for each year, changing the relationship between company financial data and census FTE jobs for each year;
- in some FTE bands there is a great deal of variation in which particular companies are included in the sample in each year;
- the financial data reported relates to the full accounts of majority seafood processing companies which may cover business activity other than seafood processing undertaken by these companies;
- changes in the wording of definitions on the Financial Survey form over time, which may affect comparison of particular figures across different reference years.

Our data collection process and methods for estimation are developing and improving over time and as a result there may be some differences between current and previously reported figures.

7



Appendix A. Definitions

The following definitions have been used throughout the most recent publications and underlying research. For the most part, these are consistent with previous years. Any changes are driven by a continuous effort to improve data quality, including accuracy and consistency over time. Where definitions were changed, the respective changes have been applied going back in time whenever possible.

Processing type - sites are categorised as primary processor, secondary processor or mixed processor (mix of primary and secondary). Seafish definitions differ slightly from definitions applied under EU Hygiene Regulations. The definitions and characteristics of these processing types are outlined in Table 1.

Table 1. Seafood processing types: definitions and characteristics.

Туре	Primary	Secondary	Mixed Processor
	Processor	Processor	
Definition of activities	Includes: cutting, filleting, deboning, picking, peeling, washing, chilling, packing, heading and gutting	Includes: brining, smoking, cooking, freezing, canning, breading, vacuum and controlled packaging, production of ready meals.	Processing units that carry out a mix of primary and secondary processes are classed as 'mixed' processors
Characteristics: (basic characteristics based on Seafish understanding)	Adding limited alterations to the raw material when bought Low margins but high volume Primarily serving live and chilled market outlets	 Adding value to the original raw material Primary processing done elsewhere – often on the fishing boat if imported or at another primary processing plant (processor does not internalise primary processing operation) Some secondary processors may keep primary processing capability in case of changes in circumstance 	 Both primary and secondary activity undertaken inhouse Both secondary and mixed processors may undertake additional business activities of branding/packagin g and product design



Fish type categories - the following categories have been designed to classify seafood processors according to the type of species they handle:

- Demersal (Whitefish) Cod, haddock, plaice, whiting, Pollack, saithe (coley), hake, monk/anglerfish, soles, lemons, megrim, witch, brill, turbot, halibut, dogfish, sharks, skates, rays, john dory, bass, ling, sea bream, marine eel, sea-water catfish, redfish and others.
- Pelagic Herring, mackerel, pilchard, sprat, whitebait, tuna and others.
- Shellfish Nephrops (scampi, langoustine), scallops, crabs, oysters, cockles, mussels, winkles, lobster, crawfish, prawn (shrimp), squid, cuttlefish and octopus, among others.
- Saltwater exotic Snapper, barracuda, barramundi (giant sea perch), croakers, drums, emperor/emperor breams, groupers, jacks, parrotfish, pomfret, snappers and swordfish, among others.
- Salmon All salmon species.
- Trout All trout species.
- Other freshwater As a fish type category, this includes all non-saltwater species other than salmon and trout, e.g.: tilapia, pangasius (basa), carp, freshwater prawns, crayfish, freshwater catfish, perch, pike, zander, freshwater eel, and others.
- Mixed For processors handling mixed species, e.g. from more than one of the above categories.

9



Seafish reports processing activity at a regional level. Regions are defined by processing site postcode (Figure 1).

Figure 1. Seafish processing regions.





Further definitions provided below. All of the following definitions are used for the purpose of Seafish data collection as per the most recent surveys (in alphabetical order):

Capital costs – The sum of depreciation, financial costs (interest paid).

Company – Organisation that owns at least one processing site, some companies own more than one. It is the lowest-level business entity (e.g. within a group structure) for which separate accounts information is produced. It is the equivalent of 'enterprise' in the EU Data Collection Framework.

Demersal/whitefish (fish type category) – See fish type categories above.

EBIT – Earnings before interest and tax have been deducted.

Employee - Employees are defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind. Employees include part-time workers, seasonal workers, persons on strike or on short-term leave, but excludes those persons on long-term leave. Employees does not include voluntary workers.

Employment – Sometimes used interchangeably with number of FTE jobs in reporting, apart from when specifically used in the context of total headcount employment. Total headcount employment is the non-weighted sum of all employees, regardless of the type of employment or working hours (e.g. a seasonal worker, a part-time employee and a full-time employee are counted as one each). On-site administrative staff are included but not office staff at office-only sites. This is a consequence of viewing each processing plant as a separate unit and is consistent across surveys.

Exporting – Selling seafood to buyers in countries outside of the United Kingdom.

Fixed capital/tangible fixed assets – The portion of total capital invested in fixed assets (such as land, buildings, vehicles, plant and equipment) that stay in the business for a relatively long period of time, or at the very least, for more than one accounting period.

Full-time equivalent (FTE) job – A standardised measure of employment, based on an employee working 37 hours per week, 52 weeks per year. Standard assumptions in accordance with the European Data Collection Framework guidelines are made for the purposes of calculating FTEs; in particular, the following formula is used:

Number of FTEs = Number of full-time jobs + (Number of part-time jobs* (days per week / 5)) + (Number of seasonal jobs* (number of seasonal staff weeks / 52))



Gross Value Added (GVA) – Net economic contribution of the industry measured as the value of goods and services produced in the industry and calculated here as wages (labour costs) plus operating profit (same as ONS income approach). GVA plus taxes is the contribution of that industry to Gross Domestic Product (GDP).

Importing – Purchasing seafood from companies based in countries outside the United Kingdom.

Intangible fixed capital – Total estimated value of non-physical capital such as intellectual property (patents, trademarks, copyright), goodwill or other form of intangible asset.

Labour costs – The sum of wages of staff (including director and management remuneration) and the estimated value of unpaid labour, calculated using the following formula:

Value of unpaid labour = number of unpaid people * number of unpaid hours * UK national minimum wage rate for over 21-year olds

Mixed (fish type category) – See fish type categories above.

Mixed (type of processor) – See processing type definitions in Table 1 above.

Net pre-tax profit – Turnover less total costs (post interest, post-depreciation, pre-tax).

Operating costs – Includes all operating costs and is the sum of raw materials costs, labour costs, energy costs and other operating costs.

Operating profit – Turnover less operating costs.

Other freshwater fish (fish type category) – All non-saltwater species other than salmon and trout. See fish type categories above.

Pelagic (fish type category) – See fish type categories above.

Primary (type of processor) – See processing type definitions in Table 1 above.

Processing – Processing is materially changing a raw material product. This definition excludes seafood merchants that buy and sell seafood (see trading/ wholesaling), possibly including defrosting, repackaging and selling in smaller quantities, but not actually coating, cutting or altering the seafood. This also excludes fishmongers which cut and fillet seafood solely for sale in their own premises (see Retailing). Service businesses, which provide a processing service to other companies without owning the seafood, are included in this definition as they materially change the seafood.



Processor/processing site – Individual factory or facility for processing seafood. The sites in scope of the research are majority processors, e.g. derive 50% or more of their turnover from seafood processing activities. In our records a site is defined by the physical premises where processing activities are carried out. A company may operate more than one site and site ownership by companies can change over time. If a processor moves to a new physical address, the old site is no longer considered in existence and a new site is added to our records. A site may have a different postal address, e.g. in the case of a separate administrative office function.

Raw material costs – Cost of seafood and other raw materials for production.

Retailing – Selling seafood to members of the public.

Salmon (fish type category) – All salmon species. See fish type categories above.

Saltwater fish (or sea fish) – All saltwater (marine) species, including whitefish, pelagic fish, flatfish, saltwater shellfish and saltwater exotics. It excludes diadromous and freshwater species (such as salmon and trout).

Secondary (type of processor) – See processing type definitions in Table 1 above.

Shellfish (fish type category) – See fish type categories above.

Total capital employed/Net assets – Money directly used to finance business.

Total costs – The sum of operating and capital costs.

Total income – Includes turnover (sales), subsidies and other income.

Trading/Wholesaling – Buying and selling seafood (trade customers).

Trout (fish type category) – All trout species. See fish type categories above.

Turnover/Operating income – Revenues, or sales, from business activity.



Appendix B. 2018 Census questionnaire

Seafood Processin	g Sector Cer	nsus 2018	3					eafish
1. General Informati	on						3	cai/sii
a. Company name:								
b. Site/facility/unit na	ame*:							
c. Site address*:								
d. Site postcode*:								
e. Company contact r	name:							
f. Site contact name:								
g. Contact email:								-
h. Contact phone:								
*If your company operate. I have read the particip								
2. Processing Activit	v							
2a. With regards to fi	-	h, which o	f the follow	ing activitie	s is your bu	siness involv	ed in? (tick o	ıll that apply)
Processing	☐ Trading/W	holesaling	Reta	ailing	Importing	☐ Ex	porting	
2b. If you included 'P	rocessina'. apu	roximatel	v what prop	ortion of the	annual tur	nover this v	ear will be fr	om fish
processing (as oppose				-		,		,
%	3,	3,		over from pr	ncessing nre	evious censu	5	1
		2611 11		over moni pi	occasiiig pro	evious cerisu	٥	I
2c. What type of fish	do you proces							1
Saltwater		Pelagic		al (whitefish)	Shellfish	☐ Saltwai		
Diadromous and fres	hwater	Salmon	Trout		Other fres	hwater fish (inc	cluding exotics)	
2d. Which types of pr	ocessing are u	ndertaken	at your site	? (tick all th	at apply)			_
Primary		Cutting		☐ Fillet	ting 🔲 C	hilling 🔲 He	ading/Gutting	
Primary (shellfish-spe	ecific)	☐ Picking	Trimm	ing 🔲 Shu	cking Pe	eeling 🔲 Wa	ashing	
Secondary		Freezing		Brini		moking Ma	-	
		Canning		Deb	· =	reading 🔲 Ba	-	
3. Source and Suppl		vacuum	/Controlled Pa	ckaging	I ^ν	laking Ready M	ieais/Cooking	
3a. Approximately whe sales (in terms of values) Source of raw	ue), are from/i	to the UK,		rest of the w	vorld, respe	ctively:	Rest of	
materials:	UK	%		EU/EEA	9	6	World	%
Sales of your		0/				,	Rest of	0/
products:	UK	%		EU/EEA	9	6	World	%
3b. Does your process	ing business u	se fish fror	n vessels ov	vned by you	or the proc	essing busir	ness? If yes, h	ow many?
○ Yes ○ No		vessels				· ·		•
3c. If you included 'Im	portina' or 'Fx	nortina'. v	vhich countr	ries are vou	currently in	nortina froi	m or exportin	a to?
Please list all.	porting or Ex	porting, .	men count	ico die you	can chay m	porting from	n or exportin	g to.
Trease not am								
4. Current Workforce 4a. How many worker	•		te today (i	ncluding ad	ministrative	and suppor	t staff)?	_
employees			Nu	umber of em	ployees pre	vious census	6	
4b. Please break this o	down below, e	nsuring the	at the figure	s for emplo	yees add up	to the tota	l figure abov	e:
		_	Permanent	full time	Permanen	t part time	Seasonal	
Male								
Female								
Unknown, undeclared	, or other							
4c. Typically, how ma		ek does a	permanent	part time n	nember of s	taff work?		days
			,			,,		/ -
5. Seasonal Workford			and workers	2 Hau man	aks as	sh manth /a	~ 1 1	.12
5a. During which mon Januaryweeks						weeks	_	
☐ Januaryweeks ☐ Februaryweeks		weeks weeks	August	weeks	_	er <u>weeks</u>		
March weeks	= :		September		=	erweeks		
5b. During seasonal p	eriod(s), how	many addi	itional seasc	onal positio	ns are typic	ally require	d?	positions
☐ The processor would lik ☐ The processor would lik								



Appendix C. 2017 Financial survey form



COMPANY NAME:	COMPANY	/ ID:
	2017 INCOME	
1. TURNOVER Value of all of your company's sales.	£	
2. SUBSIDIES e.g. grants.	£	
3. FINANCIAL INCOME e.g. equity, interest.	£	
4. OTHER INCOME Income in addition to turnover e.g. rental in		ildings.
	2017 COSTS	
 RAW MATERIAL COST Total cost of all material inputs to the producosts). 	£ uction process including	fish and other ingredients (excluding energy
6. LABOUR COSTS Total cost of staff to the business, including	£production and admin s	- staff.
7. UNPAID LABOUR Any workers not paid as conventional emplo	oyees e.g. family, friend:	PeopleHours s. Indicate the total number of people that
8. ENERGY COSTS Total cost of power to the business e.g. elec	£ tricity, gas etc.	
9. FINANCIAL COSTS	£	
Costs associated with borrowing money e.g.	. interest paid, finance c	harges.
10. DEPRECIATION Annual depreciation cost on all fixed assets	£ e.g. equipment, building	gs, land.
11. OTHER OPERATIONAL COSTS Sum of all other costs not listed above e.g. p	£ packaging, transport, ad	min etc.
2017 ASS	ETS, LIABILITIES and IN\	/ESTMENT
12. TOTAL FIXED ASSETS Value of all fixed assets, physical e.g. equipr	£ ment, buildings and non-	-physical e.g. patents, trademarks.
13. TOTAL CURRENT ASSETS Cash and other liquid assets (e.g. inventory)	fthat can be converted t	to cash within 12 months.
14. CURRENT LIABILITIES Amounts due to be paid to creditors within	£ 12 months.	
15. LONG-TERM LIABILITIES OR DEBT Amounts due to be paid to creditors after 1:	£2 months e.g. <u>long term</u>	loans, deferred tax, pensions.
16. CAPITAL DISPOSALS Proceeds from the sale of fixed assets e.g. e	£quipment, buildings, lar	nd.
17. CAPITAL INVESTMENT Purchase of fixed assets e.g. equipment, bui	£ildings, land.	

Thank you for taking the time to complete the above financial data. Your contribution ensures that the processing sector is better understood by industry and government.



Appendix D. Financial survey sample rates

The following table shows the sample gathered from seafood processing financial surveys and Companies House published accounts (supplied by Merlin Scott Associates Ltd). The financial sample presented in Table 2 covers any company with a majority seafood processing site (including salmon). The sample size may be lower than reported in Table 2 for some variables where incomplete data forms were submitted.

Table 2. Financial sample by company FTE band - number of companies in sample, total industry population of companies and financial sample as a percentage of the population of companies (2014-2017). Previous sample rates (2010-2014) are reported in the 2016 Seafood Processing Industry Report⁶.

	2014		2015			2016			2017*			
Company FTE band	Sample	Population	% of population									
Band 1 (1-10 FTE jobs)	18	186	9.68%	24	182	13.19%	20	179	11.17%	12	165	7.27%
Band 2 (11-50 FTE jobs)	22	116	18.97%	25	114	21.93%	16	112	14.29%	8	111	7.21%
Band 3 (51-250 FTE jobs)	38	62	61.29%	38	57	66.67%	27	51	52.94%	11	52	21.15%
Band 4 (250+ FTE jobs)	7	14	50.00%	9	14	64.29%	9	13	69.23%	5	13	38.46%
Total	85	378	22.49%	96	367	26.16%	72	355	20.28%	36	341	10.56%

^{*2017} data preliminary.

⁶ 2016 Seafood Processing Industry Report. Seafish. https://www.seafish.org/media/publications/2016_Seafood_Processing_Industry_Report.pdf

2nd Edition October 2019

Seafish Report No.: SR747 ISBN No.: 978-1-911073-53-6 © Copyright Seafish 2019

Seafish Economics
Seafish Industry Authority
18 Logie Mill
Logie Green Road
Edinburgh
EH7 4HS

Queries to: processingenquiries@seafish.co.uk



