sustainability

Supplementary Information (SI) to Article

Evaluation of Food Waste Prevention Measures—The Use of Fish Products in the Food Service Sector

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S2 Materials and methods

S2.1 Data inventory: case study description

Salmon supply chain description

Maritim has 45 hotels worldwide, 32 of these in Germany. The manufacturing site of Deutsche See is located at the North Sea Coast, in Bremerhaven. To facilitate distribution, Deutsche See has 19 distribution centres across Germany. Primary data on what happens with the salmon upon arrival in Bremerhaven and later on in the processing chain were collected using questionnaires and expert interviews with the deputy managers of the supplier manufacturing site and with the procurement manager of the hotel kitchen (Table S 1). Additionally, the authors visited the supplier manufacturing site and one hotel kitchen.

Table S 1. Salmon supply chain description

Stage of the supply chain	Description
Aquaculture	The Atlantic salmon in the present case study originate from aquaculture production in Norway. From the salmon farm, salmon is transported to Oslo (Norway) using refrigerated trucks over a distance of about 842 km [1]. Next, it is shipped to Bremerhaven (Germany) over a distance of 428 nautical miles, or 793 km (calculated by using an online tool for calculation distances between sea ports <https://sea-distances.org>).
Filleting and/or portioning at supplier	Upon arrival in the Bremerhaven harbour, salmon is transported to the supplier manufacturing site in Bremerhaven, where the fish are stored and – if applicable – filleted and/or portioned. In the present study, the supplier uses machines for filleting and portioning salmon; in practice, manual filleting and portioning also occurs, but to a lesser extent and mainly upon specific request of the client.
Storage at supplier	Whole salmon, fillets or portions remain in storage at the supplier for one day on average. For whole salmon, storage losses at the supplier are estimated at 1 %. After filleting (and portioning), there are no additional storage losses as these processes happen on demand and the fillets and portions are immediately being distributed to the client.
Distribution to hotel kitchens	From its manufacturing site in Bremerhaven, fish products are distributed to the various supplier distribution centres across the country (average distance of 405 km). From there, products are distributed to, amongst others, the different Maritim Hotel sites (average distance of 51 km).
Packaging applied	Whole salmon are distributed using a large reusable plastic crate (weighing 2.7 kg) fitting one fish. Fillets and portions on the other hand, are distributed using smaller reusable plastic crates (weighing 1.5 kg) fitting between 3 and 10 fillets or 60 portions. No individual packaging is applied to the fillets or portions as these are usually procured for direct consumption within the hotel kitchen. Each crate further contains about 4 kg ice to keep the fish cold, as well as a plastic cover sheet (weighing 20 g) for protection.
Storage at the hotel kitchen	Upon arrival at the kitchen, whole salmon, fillets or portions purchased by the hotel remain in storage for about 3 days, with storage losses for whole salmon and fillets at 4 % and storage losses for portioned salmon at 2 %.
Filleting and/or portioning at hotel kitchen	Whole salmon is subsequently filleted and portioned at the hotel kitchen; fillets are portioned, whereas portioned salmon needs no additional processing.
Cooking and serving of salmon	Out of scope of this study.

Fish processing protocol: filleting and portioning yield

A fish processing protocol provides information on the percentage fractions of the various salmon by-products as a percentage to the salmon wet weight. Table S 2 lists the average fish fraction percentages based on expert data from the fish processing industry.

For the purpose of this study, the filleting and portioning yield at the supplier and at the hotel kitchen are assumed to be equal.

Table S 2. Fish processing protocol (Source: supplier and hotel)

% per fish	Destination	% per fish	Destination	Categorisation	% per fish
62%	Fillet without skin	52%	Portions	PORTIONS	52 %
		5%	Tail pieces	PORTIONING CUT-OFFS	10 %
		5%	Cut-offs		
7%	Skin	7%	Skin	FILLETING CUT-OFFS	38 %
12%	Head	12%	Head		
3%	Backbones	13%	Backbones		
3%	Belly flaps	3%	Belly flaps		
1%	Tail fin	1%	Tail fin		
1.5%	Fins	1.5%	Fins		
0.5%	Grates	0.5%	Grates		
TOTAL 100%		TOTAL 100.0%			

What happens with the filleting or portioning cut-offs?

Table S 3. Detailed description of what happens with the filleting and portioning cut-offs at the supplier or at the hotel kitchen (Source: hotel and supplier).

Location	**Step**	**Destination of cut-offs**			**Detailed description**
		Bin (AD) [1]	Human consumption	Valorisation	
Hotel kitchen	**Filleting**	100 %	-	-	All filleting cut-offs are thrown in the bin, including those parts that would have been suitable for human consumption because of the time required to scrape or cut these parts off.
	Portioning	5 %	95 %	-	About 95 % of the cut-offs is used for staff meals or fish pans, whereas the remainder 5 % ends up in the bin, despite being perfectly edible.
Supplier	**Filleting**	1 %	62 %	37 %	About one third of the cut-offs is sent to external companies for valorisation as animal feed, fish meal and fish oil. Almost two thirds of the cut-offs are used for human consumption, either internally or by external companies. The separated grates (less than 2 % of the filleting cut-offs) could in theory be used for animal feed production. However, they are disposed of by the supplier as they consist of small particles that are susceptible for bacteria and germs, making them unsuitable for transport to external processors.
	Portioning	-	100 %	-	All portioning cut-offs are used internally for the purpose of fish pans, terrines and minced fish.

[1] *All food waste is used for energy production through anaerobic digestion (AD)*

Sankey diagrams for CONV_0, CONV_1 and CONV_2.

Note that Figure S3 was also given in the main article and is only repeated here for matters of completeness.

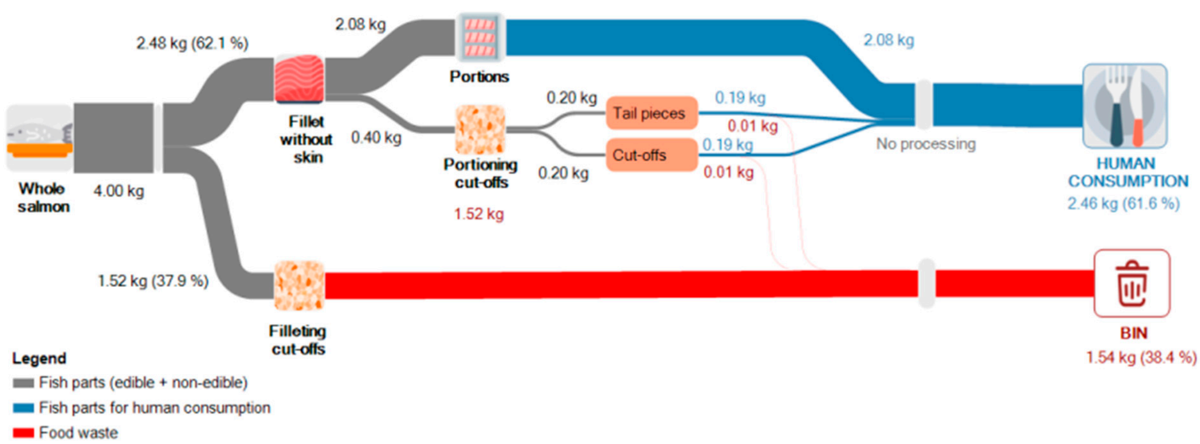

Figure S 1. Sankey diagram for CONV_0: purchase of whole salmon (filleting and portioning by the hotel kitchen)

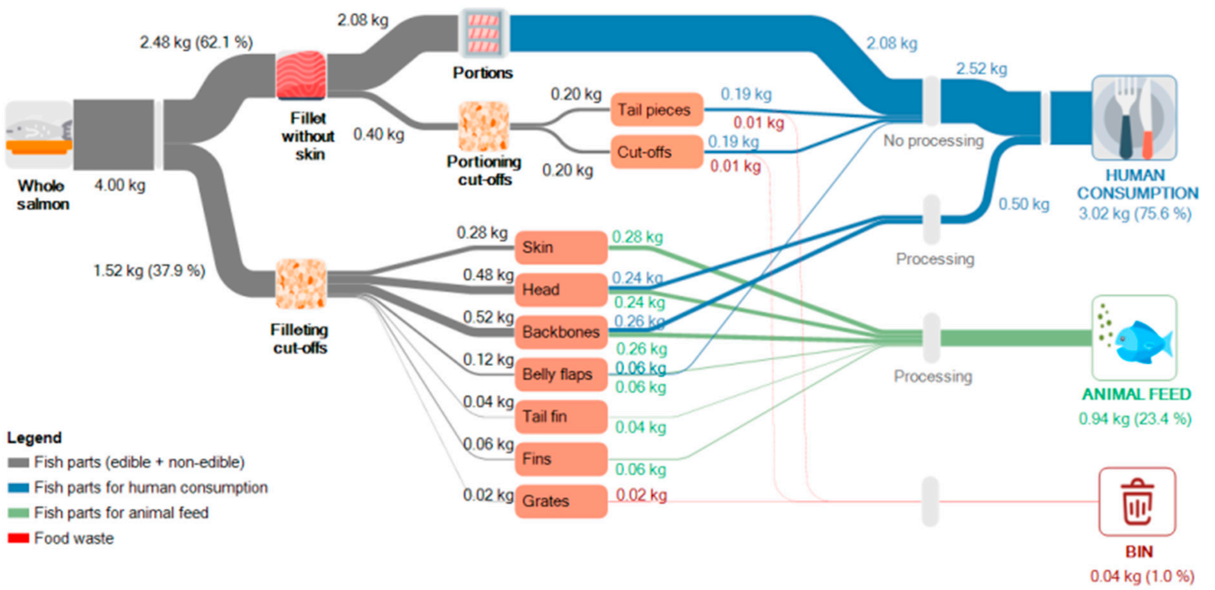

Figure S 2. Sankey diagram for CONV_1: purchase of fillets (filleting by the supplier; portioning by the hotel kitchen)

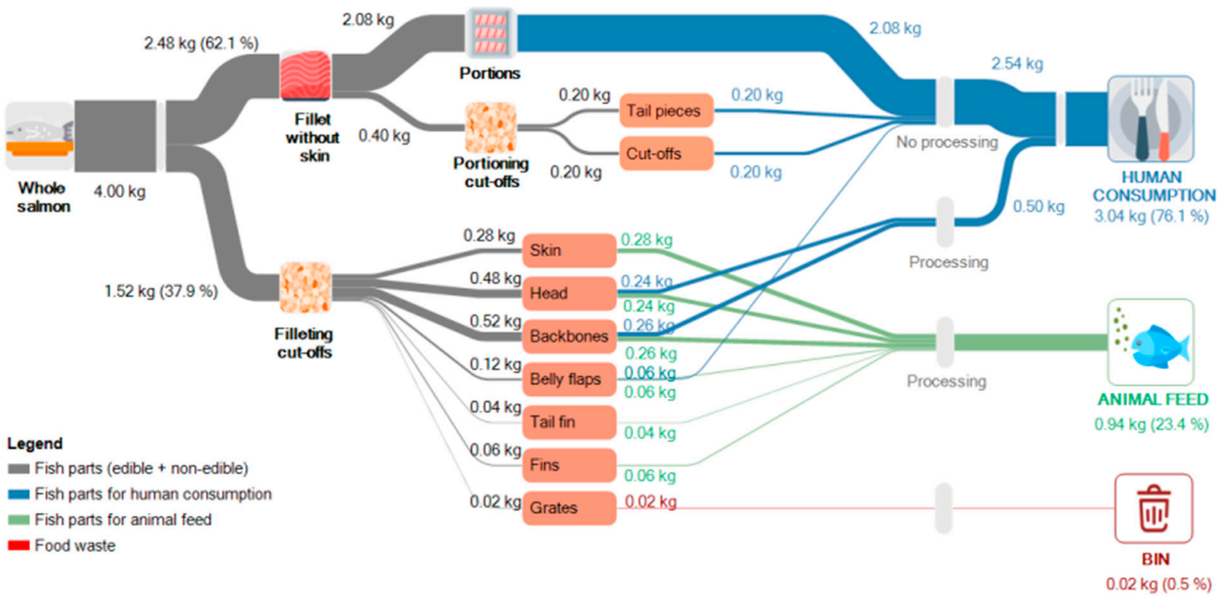

Figure S 3. Sankey diagram for CONV_2: purchase of portions (filleting and portioning by the supplier).

S2.2 Functional unit

The number of portions to be bought annually in CONV_0, CONV_1 and CONV_2 is hereby calculated as follows. Firstly, the total amount of whole salmon, fillets and portions bought in the BAU scenario in 2018 (Table S4) was converted into the number of portions purchased by the hotel kitchen under study in 2018. In total, around 130,000 portions were bought. The majority of these portions (80 %) stems from the purchase of fillets, 15 % from buying whole salmon, and 5 % from buying portioned salmon. Taking into account storage losses at the hotel kitchen, it was found that around 125,000 portions were served in 2018. Next, again taking into account storage losses, it was calculated how many whole fish, fillets or portions would need to be bought by the hotel in order to serve the same amount of portions under the scenarios CONV_0, CONV_1 and CONV_2 respectively as in 2018 (Table S5). In total, around 128,000 portions would need to be purchased in CONV_2 and 130,500 portions in CONV_1 and CONV_0 (translated into 10,000 fillets and 5,000 whole salmon respectively).

Table S 4. Hotel kitchen purchasing volumes in 2018: the BAU scenario

		whole salmon	fillet	portion	TOTAL
Purchasing volumes in 2018*	kg/year	3,000	10,000	500	13,500
	pieces/year	750	8,052	6,250	
	portions/year	19,500	104,670	6,250	130,420
Share of portions bought through whole salmon, fillets and portions	%	15%	80%	5%	
Total number of portions actually consumed per year (excl. Storage losses)	portions/year	18,720	100,483	6,125	125,328

* Purchasing volumes (kg/year) refer to data for the entire hotel chain in Germany, thus for 32 hotel kitchens. Source of the data: Supplier.

Table S 5. Number of portions as well as the associated number of whole salmon and fillets to be purchased in each scenario.

		CONV_0 whole salmon	CONV_1 fillet	CONV_2 portion
Total number of portions actually consumed per year (excl. Storage losses)*	portions/year	125,328	125,328	125,328
Total number of portions to be purchased by the kitchen to account for scenario-specific storage losses	portions/year	130,550	130,550	127,886
Number of whole salmon, fillets or portions to purchase (based on number of portions per whole fish or fillet)	pieces/year	5,021	10,042	127,886
Total purchasing volume of whole salmon, fillets or portions (based on weight of one fish, fillet or portion)	kg/year	20,085	12,473	10,231

*Based on the actual number of portions consumed in BAU, see Table S4

S2.3 Cascade index: underlying methodology

Table S 6. Cascade index: weighting coefficients for the various food waste flows. Table copied from Roels et al. [2].

Table 43: Possible destinations of food waste, examples of applications and weighting coefficient

Possible destinations of food waste flows	Examples of concrete applications	Weighting coefficient
1. FEED	Feed unprocessed to livestock, process into livestock feeds, feed to pets or wild animals by households, etc.	10
2. MATERIALS	Both material application ... • Production of biobased materials (e.g. bio-plastics, bio-chemicals, etc.) • Production of soil-improving agent via composting • The return of organic flows to the soil (not harvested, ploughing in, return to the field). as combination of material and energy application: • Production of fertiliser or soil-improving agent and energy through anaerobic digestion (possibly with subsequent composting) No hierarchy is proposed within these applications.	8
3. ENERGY	Other forms of energy generation than anaerobic digestion, e.g.. biofuels	4
4. DESTRUCTION/REMOVAL	Incineration (with energy recovery)[6]	2
	Landfilling or equivalent actions such as discharging (sewers, watercourses, toilets, discards in fishing, etc.)	0

S2.4 Data inventory: detailed data collection

Environmental and economic assessment

Since prices for fish, fillets and portions tend to vary throughout the year based on fish availability, an average per kilogram purchasing price was used for the purpose of this study. Based on the detailed prices for each of the fish by-product fractions, an average value was calculated for those fractions destined for valorisation or for human consumption.

Note that for confidentiality reasons, no exact prices could be reported here. As such, only an indicational range of values is shown in the table to indicate the differences in per kg prices between whole salmon, fillets and portions.

Table S 7. Economic value of fish products and by-products (Source: supplier and hotel kitchen)

Fish (by-) product	**Economic value: Indicative range (€/kg)**
Whole salmon	€ 10 -€ 15
Fillet	€ 15 - € 20
Portion	€ 20 - € 25
Filleting cut-offs used internally or sold by the supplier to external processors, valorised as animal feed	< € 0.5
Filleting cut-offs used internally or sold by the supplier to external processors, used for human consumption	< € 1
Portioning cut-offs (all for human consumption)	€ 2 - € 8

Table S 8. Inventory data for the environmental and economic assessment

Parameter		Value	Unit	Source
Labour costs hotel	Staff labour costs	20	EUR/h	Maritim
Waste disposal costs hotel	Biowaste (Volume bin = 240 L)	20.5	EUR/bin	own estimations, based on prices found at https://prezero.com
	Number of bins disposed of in 2018	14,976	bins/year	Maritim; 9 bins per week per hotel (for 32 Hotel sites)
	Food waste density, conversion factor	0.9	kg biowaste/L	[3]
Electricity use	Costs electricity use	0.1796	EUR/kWh	BDEW 2019
	Electricity use - cold storage (based on 300m³ room)	$1.22 * 10^{-07}$	kWh/L*day	[4], Table 7
	Electricity use - frozen storage (based on 300m³ room)	$8.22 * 10^{-07}$	kWh/L*day	[4], Table 7
	Production of ice cubes	0.056	kWh/kg ice	[4], Table 7
Water use	Costs water use	0.002	EUR/L	[5]
Filleting/portioning at supplier	Electricity use fileting/portioning machine	2.5	kWh/h	[6]
	Number of fish filleted per h	120	pieces/h	[6]
	Water usage during filleting	400	L/h	[6]
	Water for daily cleaning of filleting/portioning equipment	100	L/cleaning round	[7], Table 14
	Number of hours machine runs per day	10	h	own estimations
Filleting/portioning at hotel	Water used for cleaning after fileting	2	L/cleaning round	own estimations
	Water used for cleaning after portioning	0.5	L/cleaning round	own estimations
	Number of fish fileted/portioned before each cleaning round	10	fish	Maritim
Time spent for filleting and portioning at the hotel	Preparation/clean-up time for filleting - Time needed to fetch 10 fishes out of the storage room, prepare all required equipment and clean up afterwards	20	Minutes	Maritim
	Filleting time - Time needed for fileting 10 fishes	60	Minutes	Maritim
	In case fillets were purchased: Preparation/clean-up time for portioning - Time needed to fetch 20 fillets (or 10 fishes) out of the storage room, prepare all required equipment and clean up afterwards	15	Minutes	Maritim
	Time needed for portioning 10 fishes or 20 fillets into portions	60	Minutes	Maritim

* Time given for 10 fishes as the hotel kitchen tends to fillet/portion a large amount of fish at the same time. According to the hotel, about 10 fishes per batch are filleted and/or portioned at once.

LCA impact values

Table S 9. Environmental assessment: per unit climate change impacts from literature and databases

*To ensure compliance with the Ecoinvent EULA, it was decided not to publish the per unit impact calculated using ecoinvent but to report these as ** instead.*

Parameter		**Value**	**Unit**	**Source**
Fisheries/aquaculture	Atlantic salmon	1.793	kg CO_2 eq/kg	[8]
Transport (calculations always include the weight of the fish and of the used packaging materials)	Transport by reefer ship, with cooling	**	kg CO_2 eq/tkm	ecoinvent 3.3 << 1.0 t*km transport, freight, sea, transoceanic ship with reefer, cooling >> (incl. use of refrigerants; incl. production and maintenance of ship and infrastructure)
	Transport refrigerated truck	**	kg CO_2 eq/tkm	ecoinvent 3.3 << Fright, lorry with refrigeration, cooling >> (incl. use of refrigerants; incl. production and maintenance of truck and infrastructure; default return trip)
	Transport truck frozen goods	**	kg CO_2 eq/tkm	ecoinvent 3.3 << Fright, lorry with refrigeration, cooling >> (incl. use of refrigerants; incl. production and maintenance of truck and infrastructure; default return trip)
Cold storage	Electricity use	**	kg CO_2 eq/kWh	ecoinvent 3.3 << Low voltage, market for electricity in DE >>
	Refrigerants	/	/	not taken into account as the differences in associated impacts for food waste stemming from fish-fillets-portions are assumed to be negligible
Tertiary packaging (materials impacts)	Re-usable plastic crates to transport caught/farmed fish to the supplier	/	/	Impacts related to tertiary packaging materials and their weight during transport are not taken into account as the differences in associated impacts for food waste stemming from fish-fillets-portions are assumed to be negligible
	Pallets and plastic wrap for distribution of fish	/	/	
Secondary packaging (materials impacts)	Reusable plastic box	0.37	kg CO_2 eq/crate	Albrecht et al. (2013), takes into account re-usage cycle and breakage rate. For all crates in our study, we assumed the materials impacts would be the same as those for the fruit crate from Albrecht et al. (2013) which fits 15 kg fruit.
	Plastic bag / foil	**	kg CO_2 eq/kg	ecoinvent 3.3 . We created a process with 1/0.997 (or 1.003) * Blow moulding plastic bag, with therein the input of 1 kg of HDPE granulates (market) and use of 1 kg of the blow moulding (market) process)

	Ice cubes	**	kg CO_2 eq/kg	Calculated as impacts for electricity usage per kg ice (Table S2) + impacts for 1 kg or L tap water in ecoinvent
	Tap water (for ice cubes)	**	kg CO_2eq/L	ecoinvent 3.3 << Market for tap water, Europe>>
Disposal - packaging	Re-usable plastic box (based on breakage rate); sent to plastics recycling	0	kg CO_2 eq/kg	All eventual disposal impacts are already included in the value from Albrecht et al (2013) mentioned above
	Plastics (residual waste)	**	kg CO_2 eq/kg	ecoinvent 3.3 << Waste plastics >>
	Ice cubes	/	kg CO_2 eq/kg	sewer-related impacts are not accounted for
Disposal - food waste	Anaerobic digestion	-0.000076	kg CO_2 eq/kg	Manfredi et al (2016), Table 2; incl collection of waste and electricity generation
Filleting/portioning	Electricity use	**	kg CO_2 eq/kWh	ecoinvent 3.3 << Low voltage, market for electricity in DE >>
	Use of water for cleaning equipment or during filleting/portioning	**	kg CO_2 eq/L	ecoinvent 3.3 << Market for tap water, Europe>>; excl. use of detergents, excl. waste water treatment
	Capital good; use of filleting machine, rescaled to use per fish filleted/portioned	/	/	not taken into account as no representative value could be found; assumed to have negligible effect

LCA – Economic allocation

Next to portions, one fish generates a substantive volume of filleting and portioning cut-offs which are subsequently used for human consumption, for animal feed or are thrown in the bin. Economic allocation is applied to allocate the environmental burdens between the fish portions and the cut-offs. Impacts are calculated at the level of one fish, after which they are allocated to the portions based on the economic value attached to these portions and the side streams (Table S 7). In this process, no value was assigned to cut-offs thrown in the bin. In some cases, impacts could not be calculated at fish-level, but were directly calculated at the level of one fillet or one portion. This was the case for packaging impacts for a box of fillets or portions. In case of fillet-level impacts, the impacts associated with one fillet were allocated on an economic basis to one portion. In case of portion-impacts, no allocation was needed.

S3 Results for "Baseline BAU"

In the main article, focus is given to the comparison of CONV_1 and CONV_2 with CONV_0. Here, a comparison of each of the three scenarios with the Business As Usual (BAU) scenario is presented.

S3.1 Effectiveness

Food waste volumes generated annually - Based on the purchasing volumes of whole salmon, fillets and portions in 2018, over 2,070 kg salmon food waste was generated along the chain in BAU (Table 7, main article). A switch from BAU to procuring only fillets (CONV_1) decreased salmon food waste along the chain to around 925 kg per year (Table S 10). Switching to procuring only portions (CONV_2) would further decrease food waste to a level of around 500 kg per year. As such, food waste savings of about 1,150 kg and 1,550 kg can be achieved by switching to buying only fillets or portions, equalling net food waste savings of 55 % and 76 %. The majority of the savings hereby relate to reducing the amount of filleting and portioning cut-offs that are binned: in BAU, 14 % of the filleting and portioning cut-offs were binned; in CONV_1 and CONV_2 these shares go down to respectively 2 % and 1 %. A switch to buying only whole salmon (CONV_0) on the other hand would greatly increase food waste volumes by 322 %.

Table S 10. Effectiveness, net environmental impacts and net cost balance associated with the food waste measures under study, using the BAU scenario as reference scenario (expressed as net values per year and as percentage changes).

Baseline: BAU			CONV_0 whole salmon	CONV_1 fillet	CONV_2 portion
Effectiveness	Food waste reduction along the chain	kg/year	+6,680	-1,149	-1,567
		%	+322%	-55%	-76%
Environmental assessment	Net environmental impacts	kg CO2 eq/year	+8,004	-1,360	-2,152
		%	+16%	-3%	-4%
Economic assessment	Net cost balance	€/year	+22,260	-6,188	+33,480
		%	+11%	-3%	+17%

S3.2 Sustainability assessment

Impacts generated annually - On an annual basis, almost 50 tonnes of CO_2 eq were emitted in 2018 along the salmon chain up until arrival and eventual filleting and portioning in the hotel kitchen (BAU scenario, see Table 7 in main article). Switching to procuring only filleted salmon (CONV_1), would lead to impact savings of 1,360 kg CO_2 eq per year, reflecting a -2.7 % change (Table S 10). If the hotel would switch to buying portioned salmon only (CONV_2), the impact savings are even larger, at around 2,150 kg CO_2 eq per year, reflecting impact savings of 4.3 % as compared to BAU. A switch to buying only whole salmon (CONV_0), would lead to a 16 % impact increase as compared to the BAU scenario.

The impact savings from switching to CONV_1 and CONV_2 are mainly due to savings made in the aquaculture and in the two transport stages. For aquaculture and the subsequent transport to the supplier (steps a and b in Table 11 of the main article), changes result from differences in storage losses and from the economic allocation method used to allocate the fish farming and transport impacts of whole salmon to one portion. For the distribution stage (step e), savings are due to the very high per portion impacts in CONV_0 as compared to CONV_1 and CONV_2. Savings for CONV_1 were further obtained in the packaging stage (Step c). For CONV_2 on the other hand, additional impacts were generated in the packaging stage, following large differences in packaging impacts between CONV_1 and CONV_2 as discussed in the main article. Additional impact when moving from BAU to CONV_0 are mainly due to additional impacts generated during the distribution transport and the packaging stage, and the aquaculture stage.

Annual costs **-** In the current situation (BAU), the hotel borne costs rise up to about € 196,000 per year (Table 7 in main article). If the hotel were to buy only whole salmon or portioned salmon, net costs would increase to about €218,000 (CONV_0) or € 230,000 (CONV_2) per year. On an annual basis, the switch to procuring only whole salmon or portioned salmon result in a cost increase of 11% or 17% respectively (Table S 10). Switching to procuring only filleted salmon on the other hand (CONV_1), saves the hotel around € 6,000 per year, equal to net cost savings of 3.2 %.

In the BAU scenario, the greatest cost element is the purchase of whole salmon, fillets and portions, contributing to almost 93 % of all annual costs borne by the hotel. About 7 % of the hotel borne costs relates to labour costs for filleting and portioning the purchased whole salmon and fillets; all other cost elements contribute to less than 1 % of the total costs. In CONV_1, the situation is pretty similar. In situation CONV_2 however, both the absolute costs for purchasing salmon and its contribution to the total hotel costs increase. There are no longer labour costs for filleting and portioning; instead, new costs arise for purchasing tail pieces and bits and pieces for fish pans from the supplier (contributing to about 4 % of the total hotel borne costs). In CONV_0, the purchase of whole salmon contributes to 89 % of the total annual costs for the hotel kitchen, whereas labour costs for filleting and portioning now contribute to 11 % of the annual costs.

Product price sensitivity **-** A 10 % decrease in the commodity purchasing price of fillets and portions results in lower net costs for the hotel. Making the switch to purchasing only fillets (CONV_1) would now lead to 12.2 % cost savings as compared to the BAU scenario (with unchanged purchasing prices for whole salmon, fillets and portions). The switch to procuring only portions (CONV_2) would however still result in 5.9 % additional costs (or around € 11,500 per year) for the hotel. For the food waste intervention of moving towards buying only portions to be profitable to the hotel, the net cost balance would need to be zero or negative. It was found that a 15 % portion price decrease would lead to a negative cost balance (and thus to cost savings) for the hotel. In that case, the food waste measure would result in net savings of just under € 180 per year. All other variables are hereby assumed to remain the same.

Influence of staff skills (reflected in labour costs) **-** In the situation where a hotel deploys staff with more specialised filleting skills (+50 % labour costs; less time spent for filleting and portioning fish), the annual hotel borne costs for BAU increase to about € 201,000 (Table S 11). Total hotel borne costs in CONV_0 and CONV_1 also increase (as staff is used for portioning the fillets), and the net cost balance for switching to buying only fillets increases slightly, making the measure more profitable. The net cost balance for moving towards buying only whole salmon (CONV_0) however increases, resulting in 13 % additional costs. When it comes to the purchasing scenario of buying only portions, there is no filleting or portioning taking place at the hotel. As such, the total costs associated with CONV_2 remain unchanged. As a result, the additional costs associated with the food waste measure of buying portioned salmon decrease. Nevertheless, it would still be more cost effective for the hotel to keep on buying whole salmon, fillets and portions (BAU). The net cost balance for switching to buying only portions would only be near zero in a situation where staff costs would be almost four times as high as they are now, thereby assuming that no further time savings in filleting and portioning can be achieved. In that case, annual savings of about € 2,500 could be achieved.

Table S 11. Influence of staff filleting skills (reflected by 50 % and 300 % higher labour costs). Annual costs (€/year) and net cost balance (%) for moving from BAU to CONV_0, CONV1 or CONV_2.

	BAU	**CONV_0**		**CONV_1**		**CONV_2**	
	Annual costs	Annual costs	Net cost balance	Annual costs	Net cost balance	Annual costs	Net cost balance
Initial calculations	196,048	218,307	+11%	189,860	-3.16%	229,527	+17%
Improved filleting skills (+50 % labour costs)	201,060	226,258	+13%	194,630	-3.20%	229,527	+14%
Improved filleting skills (+300 % labour costs)	232,020	278,561	+20%	223,502	-4%	229,527	-1%

S3.3 Meal components saved

On an annual basis, 141 kg of perfectly edible food currently ends up in the bin in the BAU scenario (Table S 12). Moving towards CONV_1 or CONV_2, would decrease the amount of edible food to be thrown following better use of portioning cut-offs and fewer storage losses along the chain. Assuming a fish serving of 80 g, around 500 servings can be saved when procuring fillets only (CONV_1). This number goes up to almost 1,770 servings when purchasing only portions (CONV_1). Moving towards buying only whole salmon however (CONV_0), would increase the share of edible food being thrown resulting in 3,265 meal components being thrown per year.

Table S 12. Amounts of edible food for each scenario and the number of meal components to be saved by switching from CONV_0 to CONV_1 and CONV_2.

		CONV_0	**CONV_1**	**CONV_2**	**BAU**
Per portion					
Total amount of edible food to be used for human consumption purposes	g/portion	17.85	17.85	17.85	n.a.
Total amounts of food used for preparing meals	g/portion	14.8	17.1	17.8	n.a.
Total perfectly edible food that is thrown	g/portion	3.1	0.8	0.0	n.a.
Per year					
Total amounts of food used for preparing meals	kg cut offs/year	1,927	2,228	2,282	2,186
Total perfectly edible food that is thrown	kg cut offs/year	403	101	0	141
Food waste savings					
Baseline CONV_0	kg cut offs/year		- 301	- 403	
	meal components saved/year		- 3,766	- 5,034	
Baseline BAU	kg cut offs/year	261	- 40	- 141	
	meal components saved/year	3,265	- 501	- 1,768	

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