

2021

Sector Sustainability Update



14 LIFE BELOW WATER



Wild Ketchikan Salmon Spawning, Alaska USA © [Bernard Sörries](#)

SALMON

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2021 Sector Sustainability Update



Chinook Salmon illustration ©Joseph Tomelleri

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SUMMARY

Production and trade

- This sector consists of both **farmed** and **wild** salmon produced worldwide, an important sector within the scope of [Target 75](#).
- Farmed salmon production shows an increasing trend, reaching an average historical maximum during the last five years of about **2.8 million tonnes** per year, growing three times faster than the wild component in the last decades.
- European countries, mostly with farmed salmon, contributed 43 percent of world production in 2019, with **Norway** alone representing 36 percent.
- The wild-capture component is stronger in Asia, led by **Russia** with 50 percent of world wild production.
- The **top species** produced worldwide are Atlantic salmon (*Salmo salar*), with 85 percent of global farmed production, followed by pink salmon (*Oncorhynchus gorbuscha*), with 37 percent of wild production.
- The **top 10 salmon exporters** represented 85 percent of global trade value in 2019, led by the two top world producers, Norway and Chile, which together accounted for 46 percent of exports, worth USD 14 billion.
- Important exporters, albeit not producers of this commodity, include Sweden, with 13 percent of global exporting value, as well as Poland, China, and Germany. In contrast, Russia, though it is the world's third leading producer, ranks only 15th among global exporters.

T75 status and current strategic priorities

- Almost 80 percent of global salmon production, 3.3 million tonnes, was considered as **sustainable or improving** in 2019. Norway, Chile, the US, and Russia were major contributors to the sustainable and improving production of this commodity.
- Key sustainability issues in farmed production include outbreaks of disease and parasites and an overreliance on the use of veterinary medicines to treat these in some geographies. There are also sustainability concerns for some of the identified source fisheries used in fishmeal and fish oil production, and limited monitoring of dissolved effluents in the water column and veterinary medicine residues in the benthos.

DISCLAIMER

This report was prepared with information available from multiple sources, accessed in late September 2021. The report is not intended to be a comprehensive review of the sector, but rather a summary of progress against the Target 75 initiative, with some selected key highlights and improvement needs for the sector. The trade analysis is based on FAO bilateral trade data, which may not fully depict the full trade flows from the first exporter to the last end market of certain commodities. For more detailed information on seafood production, trade, or the status and attributes of particular certifications and improvement projects, the original sources should be consulted.

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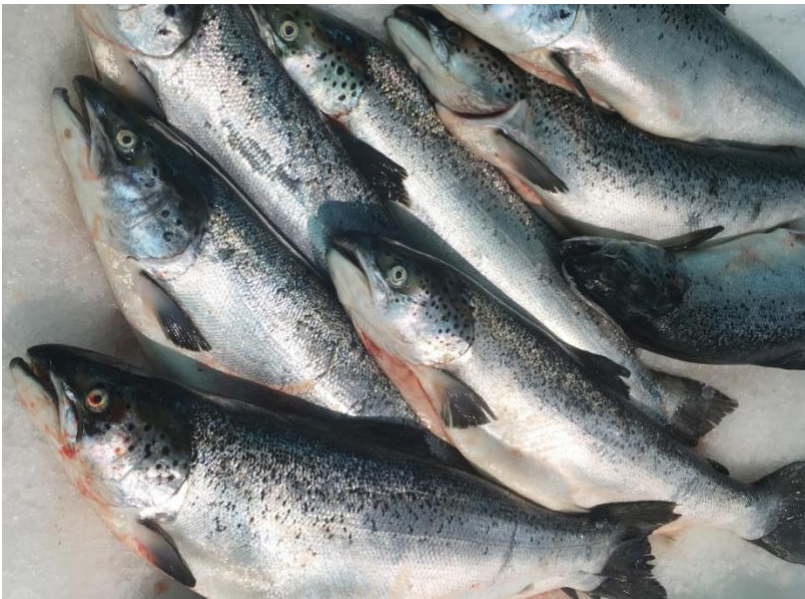
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Salmon for sale in local market © Shutterstock

THE TARGET 75 INITIATIVE

Sustainable Fisheries Partnership (SFP) applies a sectoral approach to its mission of making actionable information available to the supply chain, in order to leverage market forces to achieve improvements in fisheries. Seafood sectors may be defined in terms of the shared biological characteristics of harvested species, as well as their role in defined markets.

In 2017, SFP launched the Target 75 (T75) initiative, as a dedicated and concrete benchmark on the way to our ultimate goal of 100-percent sustainable seafood. **T75 aims to ensure that 75 percent of seafood (by volume) in 13 key sectors is either sustainable or making regular, verifiable improvements.** Together, these T75 sectors cover most of the main types of seafood consumed in North America and Europe, and a significant portion of what is consumed in Japan and Oceania.



1

SALMON SECTOR

This sector includes all salmon that is sold fresh or frozen (farmed Atlantic salmon predominates, but also wild and farmed Pacific salmon) or in shelf-stable form.

It also includes some sources of salmon-like species (e.g., trouts, chars) that can substitute for salmon in the market.

Norway, Chile (mostly farmed salmon), Russia, and the United States (mostly wild Pacific salmon) are the top salmon producers, accounting for more than 80 percent of total production.

The most important end markets for salmon are the United States, the European Union, and Japan.

More information on the definition and scope of this and other Target 75 sectors is available [here](#).



Aerial view of fish farm cages © Shutterstock



Wild salmon for sale at Pike Place market, Seattle, USA © KenLane

2 SCOPE AND OBJECTIVES

This report provides a quick summary update on progress so far for the [salmon sector](#) against the 75-percent goal, in terms of volume of production that is already considered as either sustainable or improving. The update also includes highlights on which sources of production had the most relevant changes, as well as the most recent trends in production and trade.

For the purposes of this analysis, we define a fishery as “sustainable” if it is Marine Stewardship Council (MSC)-certified or green-listed in SFP’s [Metrics](#) tool. We define a fishery as “improving” if it is certified by one of the following programs: MarInTrust, ASMI RFM, Iceland Responsible Fisheries, Fair Trade USA; if it is under full assessment in the MSC program; or if it is in a fishery improvement project (FIP) that is making good progress (i.e., with a progress rating of A, B, or C, or formed within the last 12 months but still unrated), using SFP’s [FIP Evaluation Tool](#). We define farmed production as improving if it is certified by one of the following programs: Aquaculture Stewardship Council (ASC), Best Aquaculture Practices (BAP), GlobalG.A.P.’s GCN; or if it is in a formal aquaculture improvement project (AIP).

Data on production refers to 2019 production and is from the [FAO FishStatJ](#) database. Status in terms of certifications and fishery, and FIPs refers to September 2021.



Salmon farm in Southern Chile © [Salmonexpert](#)



Fresh wild salmon, Alaska USA © [Isaac Wedin](#)

3 PRODUCTION

Salmon is an important seafood sector within the scope of Target 75, with average annual production (farmed and wild) of nearly 4 million tonnes in the last five years (FAO 2021a). Annual production shows an increasing trend since the 1950s (**Figure 1**), with annual growth averaging 4 percent over the past two decades. This growth is mostly driven by the increasingly dominant farmed component, in which production has grown to three times higher than the wild component since the 1990s.

The top 15 producing countries account for 99 percent of total production (**Figure 3**). European countries, with mostly farmed production, contributed 43 percent of world production in 2019, with Norway alone representing 36 percent (**Figures 2 & 3**). The Americas placed second with 38 percent. Despite the contribution of Chile, the world's second-largest farmed salmon producing country (24 percent of farmed production), 25 percent of the Americas' total production was from the wild component, mostly driven by the US and Canada (**Figure 2**). In Asia, the wild component dominates, mostly due to the Russian contribution, which represents 50 percent of world wild production. The US, Japan, and, on a smaller scale, Canada, are the next largest producers of wild-caught salmon. The UK and Canada join Norway and Chile as the top four farmed salmon producing countries (**Figure 3**). The top species produced worldwide are Atlantic salmon (*Salmo salar*), with 85-percent of global farmed production, followed by pink salmon (*Oncorhynchus gorbuscha*), with 37 percent of wild production (**Appendix I & II**).

Figure 1 | Time series of global salmon production and annual export value (bars)

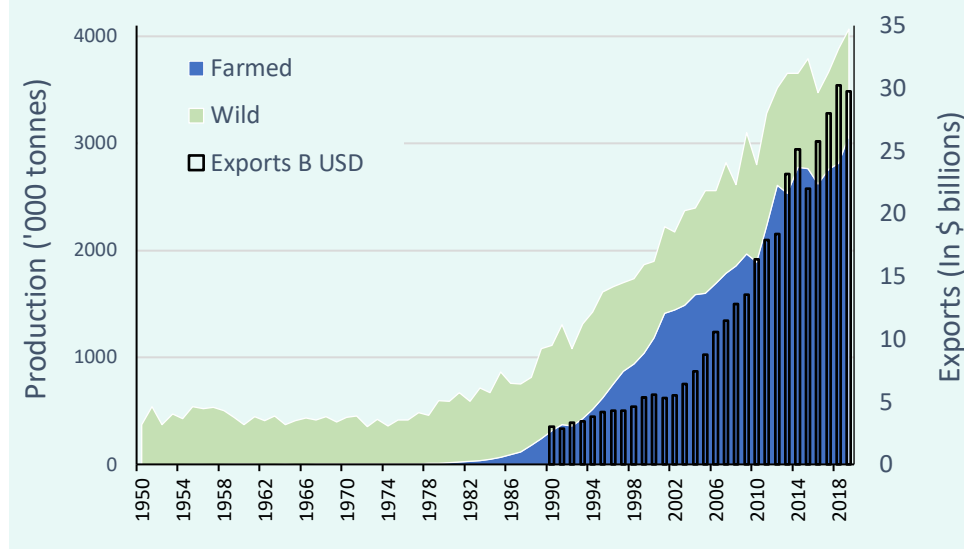
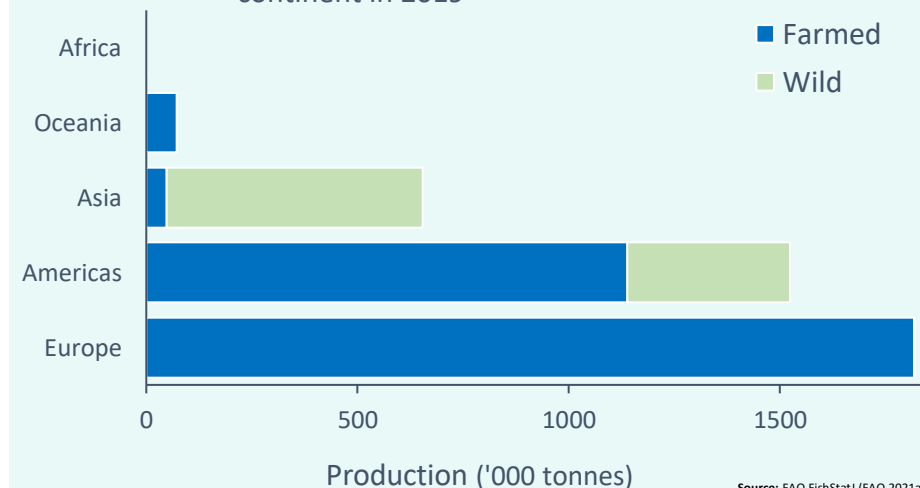
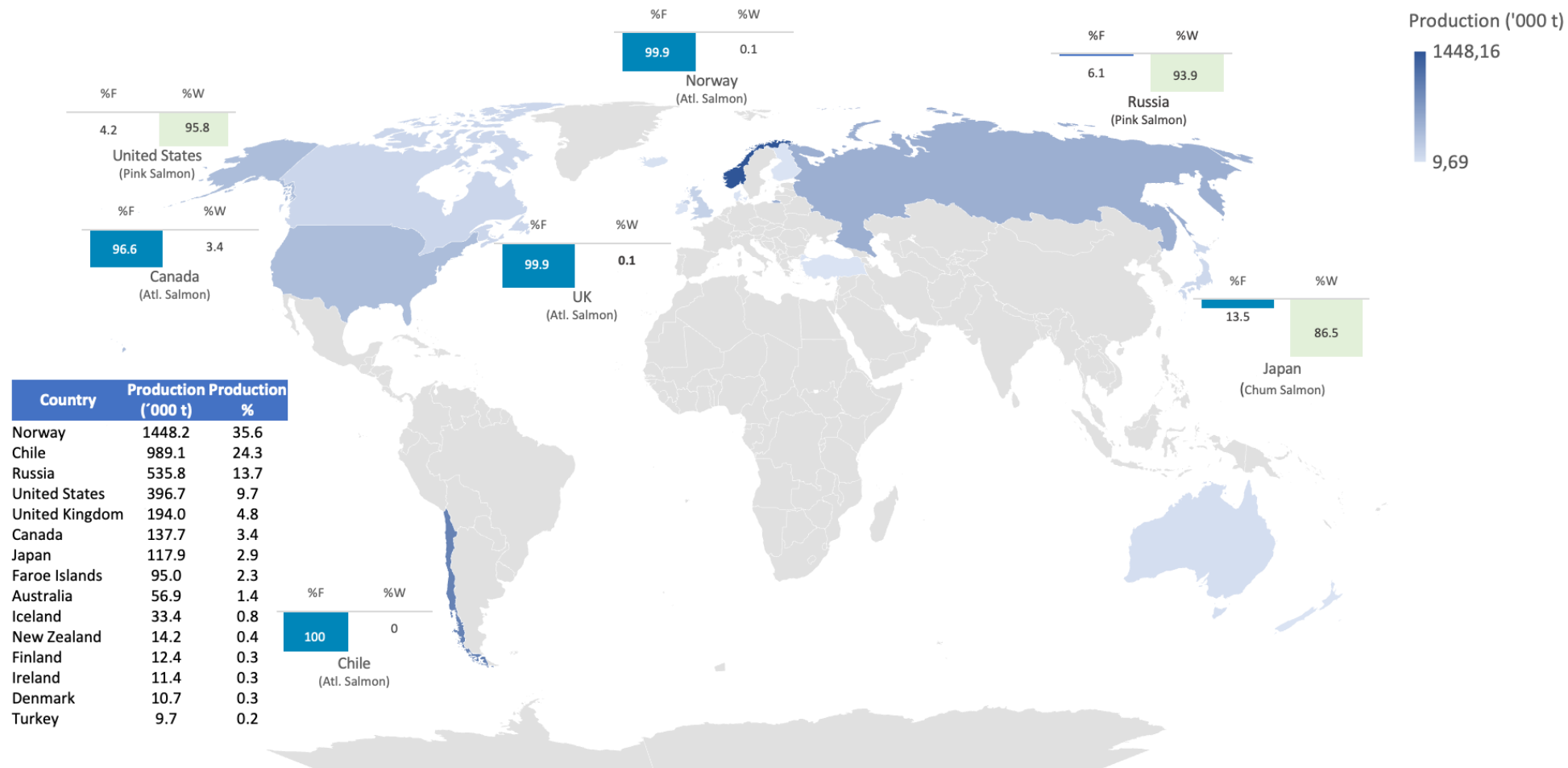


Figure 2 | Farmed and wild salmon production by continent in 2019



Source: FAO FishStatJ (FAO 2021a, 2021b)

Figure 3 | The top 15 salmon-producing countries in 2019 (99 percent of total catches), with farmed (%F, blue) and wild (%W, green) shares, and respective main species, for the top seven producers



Source: FAO FishStatJ (2021a)

4 TRADE STATISTICS

Salmon remains the most relevant seafood commodity in terms of trade economics. Global exports represented about USD 30 billion by value in 2019, with a contraction of 1.6 percent from last year. In the past decade, there was a 55-percent increase in economic gross of global exports for this commodity, from USD 13.5 billion in 2009 to the current values, with an average annual variation in growth of 8.5 percent (**Figure 1**) (FAO 2021b).

The top 10 salmon exporters represented 85 percent of global trade value in 2019, led by the two top world producers, Norway and Chile, which together accounted for 46 percent of exports, worth USD 14 billion. Another important exporter is Sweden, which, while not a salmon producing country, contributed 13 percent of global export value, with revenue generated entirely from the processing of this commodity. This is also the case for Poland, China, and Germany (**Table 1**) (FAO 2021c). The reverse is the case for Russia, which ranks third for global production, but only 15th for exporting.

The top nine importers represented 88 percent of total volume in 2019. Bilateral trade flows show a concentrated distribution worldwide for this commodity. Europe is the strongest trade partner, with 55 percent of market share, representing nearly USD 16.4 billion, followed by the US with 15 percent and USD 4.4 billion of trade value. Japan is the

seventh highest producer, but only the third highest importer, due to the high global demand for this commodity (**Table 1**) (FAO 2021c).

Table 1 | Bilateral trade flows showing the main salmon exporters in 2019 and their top trade partners, by percentage of each country's total exports and respective market shares

Exporter	Importer										Total 2019 exports (USD billion)	% Total Exports
	EU / EEA / UK	United States	Japan	China*	Canada	Brazil	Russia	South Korea	Thailand	Other		
Norway	68%	7%	4%	2%	1%	0%	0%	3%	2%	13%	8.63	29%
Chile	4%	36%	22%	5%	1%	12%	7%	1%	2%	11%	5.18	17%
Sweden	99%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3.74	13%
Denmark	88%	4%	0%	0%	0%	0%	0%	0%	0%	8%	1.62	5%
Poland	93%	2%	0%	0%	0%	0%	0%	0%	0%	5%	1.60	5%
United States	20%	0%	11%	14%	34%	0%	0%	7%	4%	9%	1.20	4%
United Kingdom	48%	33%	1%	8%	1%	0%	0%	0%	0%	8%	1.17	4%
Canada	5%	88%	2%	1%	0%	0%	0%	0%	0%	3%	0.83	3%
China*	36%	38%	12%	0%	7%	0%	1%	0%	0%	5%	0.62	2%
Germany	82%	13%	0%	0%	0%	0%	0%	0%	0%	5%	0.60	2%
% Total Imports	55%	15%	7%	3%	2%	2%	2%	1%	1%	12%		

(*) Includes Hong Kong

Source: FAO 2021c

Note: Export value is respective to both farmed and wild components combined. For trade purposes, salmon species are reported in aggregated categories that include other salmonid species (e.g., salmonoids nei, salmon fillets frozen, etc.), and thus export value might be overestimated.

Bilateral trade flows show a positive trend in gross growth for the two top exporters in the last decade for this commodity, with 9 percent annual growth for Norway and 11 percent for Chile (FAO 2021c).

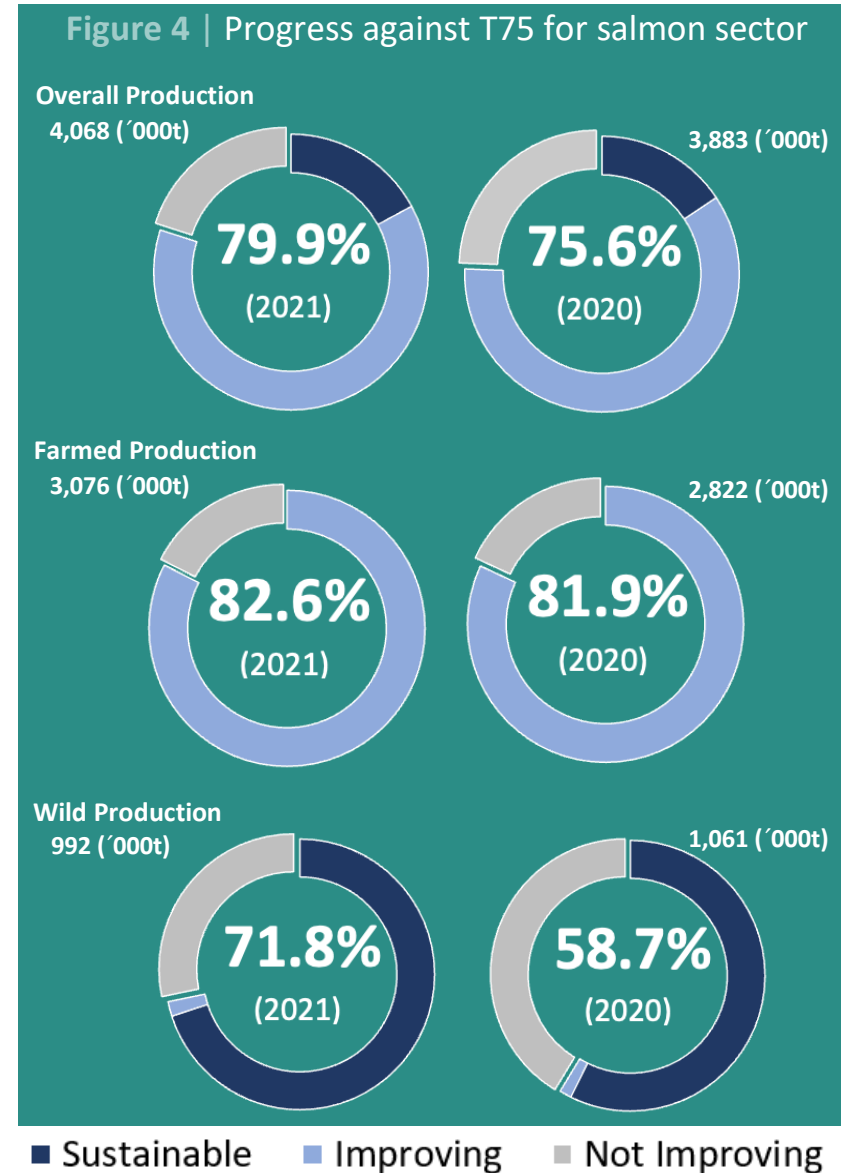
5 PROGRESS AGAINST THE 75% TARGET

Currently, 3.3 million tonnes, or 79.9 percent of global salmon production, are estimated to be sustainable or improving. This represents a more than 4-percent increase from last year (Figure 4). Improving volume of the farmed component increased. Although overall wild production volume fell from 2020, the percentage that is sustainable or improving increased substantially, mainly due to the increase in production from MSC-certified fisheries (Figure 4).

There are currently three FIPs, 14 MSC fisheries (either certified or in assessment), and one Fairtrade-certified fishery covering salmon, distributed throughout 13 countries (Appendix III). In 2019, the top contributor was Norway, with 37 percent of the total sustainable or improving volume reported for this commodity. The top four contributors of sustainable and improving salmon for both farmed and wild account for nearly 87 percent of sustainable and improving volume (2.8 million tonnes) (Appendix III).

Compared to last year's update, there are two fewer FIPs listed for the salmon sector, one of which became MSC-certified ([Narody Severa Bolsheretsk salmon](#)). Two additional fisheries entered MSC full assessment: [FTP Comandor JSC Sea of Okhotsk and Bolshaya River Pacific salmon](#) and [Kolkhoz Udarnik Karaginsky Gulf Karaga Bay and Litke Strait pacific salmon](#).

Learn about SFP's T75 strategy and prioritized fisheries [here](#).



6 CHALLENGES TO SUSTAINABILITY

Farmed production

Salmon farming is generally well-regulated and organized. Although there are exceptions, the global salmon industry has also embraced the concept of zonal management through the creation of aquaculture or farm management areas. Despite these strong positives, the FishSource Aquaculture (FS Aqua) profiles for major salmon producing regions identify several key sustainability issues. These include:

- Frequent outbreaks of both notifiable and non-notifiable diseases and parasites and an overreliance on the use of antibiotics and medicinal feeds to treat these
- Sustainability concerns for some of the identified source fisheries used in salmon feed
- In some geographies, there is minimal evidence of the monitoring of dissolved effluents and residues of veterinary medicines.

Wild fisheries

With respect to wild salmon production, the quality of management, stock assessment, and monitoring is generally strong, but not without weaknesses, and variable among regions. Key sustainability priorities for continued improvement and/or investigation are:

- Monitoring, data, and/or assessment (e.g., Russia, British Columbia)
- Enforcement, monitoring, and control (e.g., Russia)
- Understanding and, where appropriate, mitigation, of the effects of large-scale hatchery production (e.g., US, Russia, Japan), including:
 - Impacts on fitness of wild salmon stocks through genetic interaction
 - Impacts in the ocean environment (competition among salmon species and with different species, ecosystem effects)
 - Understanding of ETP impacts (e.g., seabird interaction).

AQUACULTURE



SFP's approach to aquaculture is based on our [Framework for Sustainably Managed Aquaculture](#). Key to this is a concept known as zonal management, which recognizes that farms are interconnected, and industry growth should be based on an assessment of disease risk and ecosystem carrying capacity.

FISHERIES



SFP's approach to wild fisheries follows our [Improving Fisheries Management Initiative](#), where the enactment of management measures by local authorities is a common goal of most fishery improvement projects (FIPs). Our other top priority is to address the challenges of illegal, unreported, and unregulated (IUU) fishing.

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8 GLOSSARY

AIP	Aquaculture Improvement Project	NEI	Not Elsewhere Included
ASC	Aquaculture Stewardship Council	NGO	Nongovernmental Organization
ASMI	Alaska Seafood Marketing Institute	RFMO	Regional Fisheries Management Organization
BAP	Best Aquaculture Practices	SFW	Seafood Watch
EEZ	Exclusive Economic Zone	SR	Supply Chain Roundtable
FAO	Food and Agriculture Organization	T75	SFP Target 75 initiative
FIP	Fishery Improvement Project	UoC	Unit of Certification (for a fishery under the MSC program)
GLOBALG.A.P.	Worldwide Standard for Good Agricultural Practices		
GCN	GLOBALG.A.P.'s certified, responsible farming and transparency label		
IRF	Iceland Responsible Fisheries		
ISSCAAP	International Standard Statistical Classification of Aquatic Animals and Plants		
MBAq	Monterey Bay Aquarium		
MSC	Marine Stewardship Council		
MSC C	Marine Stewardship Council Certified		
MSC FA	Marine Stewardship Council Full Assessment		

Appendix I | Wild salmon species and respective production in 2019

Common name	Scientific name	2019 production ('000 t)	% of total
Pink salmon	<i>Oncorhynchus gorbuscha</i>	518.7	52.3
Chum salmon	<i>Oncorhynchus keta</i>	254.4	25.6
Sockeye salmon	<i>Oncorhynchus nerka</i>	184.6	18.6
Coho salmon	<i>Oncorhynchus kisutch</i>	21.8	2.2
Chinook salmon	<i>Oncorhynchus</i>	4.9	0.5
Atlantic salmon	<i>Salmo salar</i>	1.8	0.2
Masu salmon	<i>Oncorhynchus masou</i>	1.2	0.1
Arctic char	<i>Salvelinus alpinus</i>	0.3	0.03
Sea trout	<i>Salmo trutta</i>	0.3	0.03
Rainbow trout	<i>Oncorhynchus mykiss</i>	0.01	0.0
Other	Salmonids nei, etc	4.6	0.5

Appendix II | Farmed salmon species and respective production in 2019

Common name	Scientific name	2019 production ('000 t)	% of total
Atlantic salmon	<i>Salmo salar</i>	2616.0	85.1
Coho salmon	<i>Oncorhynchus kisutch</i>	221.3	7.2
Rainbow trout	<i>Oncorhynchus mykiss</i>	200.8	6.5
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	14.2	0.5
Arctic char	<i>Salvelinus alpinus</i>	8.5	0.3
Masu salmon	<i>Oncorhynchus masou</i>	0.2	0.01
Sea trout	<i>Salmo trutta</i>	0.1	0.0
Chum salmon	<i>Oncorhynchus keta</i>	0.01	0.0
Pink salmon	<i>Oncorhynchus gorbuscha</i>	0.01	0.0
Other	Salmonids nei, etc	14.5	0.5

Source: FAO FishStat (FAO 2021)

2021 Sector Sustainability Update: Salmon

Appendix III | Countries with fisheries reporting both improving and sustainable volume for salmon species and respective percentage of total volume on track for 2019 – data obtained from the last T75 analysis (2021)

Country	Common name	Scientific name	Production	% of total
Norway	Atlantic salmon	<i>Salmo salar</i>	Farmed	37.0
	Rainbow trout	<i>Oncorhynchus mykiss</i>	Farmed	
Chile	Atlantic salmon	<i>Salmo salar</i>	Farmed	28.0
	Coho salmon	<i>Oncorhynchus kisutch</i>	Farmed	
	Rainbow trout	<i>Oncorhynchus mykiss</i>	Farmed	
United States	Atlantic salmon	<i>Salmo salar</i>	Farmed	11.9
	Pink salmon	<i>Oncorhynchus gorbuscha</i>	Wild	
	Chum salmon	<i>Oncorhynchus keta</i>	Wild	
	Coho salmon	<i>Oncorhynchus kisutch</i>	Wild	
	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Wild	
	Sockeye salmon	<i>Oncorhynchus nerka</i>	Wild	
Russia	Pink salmon	<i>Oncorhynchus gorbuscha</i>	Wild	10.3
	Chum salmon	<i>Oncorhynchus keta</i>	Wild	
	Coho salmon	<i>Oncorhynchus kisutch</i>	Wild	
	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Wild	
	Sockeye salmon	<i>Oncorhynchus nerka</i>	Wild	
United Kingdom	Atlantic salmon	<i>Salmo salar</i>	Farmed	5.0
	Rainbow trout	<i>Oncorhynchus mykiss</i>	Farmed	
Canada	Atlantic salmon	<i>Salmo salar</i>	Farmed	
	Pacific salmon	<i>Salmo gairdneri</i>	Wild	
Faroe Islands	Atlantic salmon	<i>Salmo salar</i>	Farmed	1.9
Australia	Atlantic salmon	<i>Salmo salar</i>	Farmed	1.8
Denmark	Atlantic salmon	<i>Salmo salar</i>	Farmed	0.2
	Rainbow trout	<i>Oncorhynchus mykiss</i>	Farmed	
Iceland	Atlantic salmon	<i>Salmo salar</i>	Farmed	0.3
Ireland	Atlantic salmon	<i>Salmo salar</i>	Farmed	0.1
New Zealand	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Farmed	0.4
Turkey	Rainbow trout	<i>Oncorhynchus mykiss</i>	Farmed	0.03



Upstream river migration of adult salmon, Olympic National Park, Washington USA © [Howard Ignatius](#)

FURTHER INFORMATION

<http://www.sustainablefish.org/>

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