

# RELEVANT DATA ON CHILEAN SALMON FARMING A SUSTAINABLE

SOURCE: GLOBAL SALMON INITIATIVE, FAO AND THE SALMON COUNCIL OF CHILE

**INDUSTRY** 

# **DID YOU KNOW?**

Salmon farming is a relatively new industry in our country. It has developed strongly in the last 40 years,

## positioning Chile as the second largest salmon producer

-after Norway, with 27% of the world production.

Over time, companies have been gaining in knowledge and experience, where through science, technological development and innovation, they systematically raise their standards in line with global requirements.



Currently, there are about 35 thousand direct jobs associated with salmon farming, to which we must add approximately one indirect job for each direct job created, so we would be talking about 70 thousand jobs associated with salmon farming.

In terms of suppliers, the companies associated with the Salmon Council of Chile — which represent 50% of the country's salmon production — currently work with 7,500 suppliers of various goods and services related to salmon farming, primarily located in southern Chile.

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# DEBUNKING INDUSTRY MYTHS





FALSE

The color of salmon that we see is naturally formed by a pigment called astaxanthin. This carotenoid is produced by certain algae and crustaceans and, due to its chemical structure, provides antioxidant benefits for fish and other marine species.

TRUE

(X)

FALSE

The salmon industry is one of the most supervised industries in our country, with more than 14 thousand dossiers, far exceeding other productive industries such as agribusiness, energy, forestry and mining.

Since 2021, audits in the fish farms increased by 18% and, despite these figures, the industry is the least sanctioned, registering only 3.3% of the total. FALSE 🔇

 $(\checkmark$ 

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TRU

According to various studies, salmon has environmental advantages compared to other animal proteins: It has a lower carbon footprint (0.6%), uses less freshwater during production and is more efficient in terms of yield, i.e., to produce one kilo of salmon meat, less feed is needed.

TRUE <

Salmon is among the most efficient foods for retaining proteins suitable for human consumption. In the entire production cycle of salmon, 28% is transformed into protein available for this purpose.

In addition, salmon has the best edible meat index. About 68% of its weight is destined for human consumption, it contains Omega 3 and is low in saturated fats. Chile has one of the strictest regulations on antimicrobials in aquaculture in the world, following the guidelines of the World Organization for Animal Health (OIE), together with other international entities such as FAO and UNEP. The use of antibiotics is only disease prevention, with continuous review by veterinary professionals to ensure food safety.

National entities such as the National Fisheries and Aquaculture Service (Sernapesca in Spanish) and the Chilean Agricultural and Livestock Service (Sag for its acronym in Spanish) regulate and supervise compliance with the standards established by OIE. After each production cycle, external laboratories selected by Sernapesca prepare environmental reports to verify the amount of oxygen in the seabed. Thus, the fish farms can plant fish only if the oxygen levels are adequate.

Likewise, companies are constantly innovating and implementing technology to better control fish feeding, providing just the right number of fish to feed without waste through digital monitoring rooms in the fish farms.



 $\checkmark$ TRUE

Salmon farming has been able to consistently employ salmonid diets with less marine protein, making them more sustainable.

Furthermore, there are now fish farms where the feed is zero marine protein.

In the last 30 years, we have gone from diets with almost 100% marine proteins an oils to formulations that, on average, now contain around 16% of nutrients from fishery resources.



Source: Global Salmon Initiative, 2019. Learn more at: https://globalsalmoninitiative.org/es/nuestro- trabajo/ pienso-sostenibilidad/

# BENEFITS OF SALMON

Farmed salmon is a **healthy protein** that has a lower carbon footprint, thanks to lower water consumption and higher feed conversion efficiency compared to other animal-based proteins. It also represents a concrete solution to the global food challenge.

https://globalsalmor nutrici%C3%B3n/ itiative.org/es/acerca-del-cultivo-salm%C3%B3n/sistemas-alimentarios-sostenibles



much less than cattle, which emit around 6 kilos.

Source: Global Salmon Initiative, 2023 Sustainability Report, "el rol del salmón de cultivo en los sistemas alimentarios sostenibles (the role of farmed salmon in sustainable food systems)". https://globalsalmoninitiative.org/es/nuestro-progreso/informe-de-sostenibilidad/el-rol-del-salm%C3%B3n-de-cultivo-en-los-sistemas-alimentarios-sostenibles/



In terms of water consumption, if livestock farming uses 15,300 liters of water for each kilo of product, farmed salmon uses only 1,400 liters of water.

## An edible portion of salmon has **0.6 kilos of carbon dioxide emission** associated,



# TYPES OF **SALMON**

According to the UN, the world population will reach 9.7 billion by 2050. In other words,

## an increase of 2 billion people is expected over the next 3 decades.

Due to the fact that 70% of the planet is covered by oceans and only 7% of the proteins destined to human consumption correspond to fish, aquaculture, and in particular farmed salmon, represents a healthier and sustainable alternative that should contribute to face the growth of the world population and the demand for proteins, Blue Food Assessment, (2021). Therefore, Chile could play a very important role as a sustainable food supplier in the next 30 years.

Source: Construir un futuro de «alimentos azules» para las personas y el planeta Informe de la iniciativa Blue Food Assessment, 2021. DOI: 10.25740/rd224xi7484

## Atlantic Salar



This salmon grows in freshwater during its juvenile phase and then moves to saltwater. It has a life cycle of approximately 3 to 4 years in fish farms.

In culinary circles, Atlantic salmon is often noted for its size and rich flavor, buttery and firm texture, attributes that make it available for a wide variety of dishes.

## **Pacific** Coho



It has a shorter life cycle of about 2 to 3 years. Its meat has a more intense red color and has a more robust flavor.

This species only spawns once in its life. That is, it is born, grows, reproduces and dies. It is also more resistant to bacterial diseases.

Its characteristic silvery tone in the ocean transforms into a soft reddish brown when it migrates to freshwater to spawn. On the table, coho salmon offers a more intense and flavorful taste.



#### It is the best known and most produced worldwide, representing 80% of the world's salmon farming production.

# SALMON FARMING PROCESS



#### FERTILIZATION

The cycle begins by obtaining and cultivating female salmon eggs, which may be of the Atlantic, coho or trout species. The fertilized eggs develop into eggs.



#### SMOLT

After an incubation period of 30 to 50 days, the eggs hatch and smolts are born. This stage takes place in freshwater.



#### SMOLTIFICATION

This is one of the most important stages in the farming process, in which salmonids develop a series of changes to move from freshwater to seawater.

## FRESHWATER

8 to 14 months depending on the species



### SEAWATER

9 to 18 months depending on the species



#### FATTENING

At this stage the salmon grow to the ideal size to be harvested. This phase lasts from 9 to 18 months, depending on the region and species.



Both sexes must be healthy and sexually mature.



#### PROCESSING PLANT

The fish are transferred in water tanks to the processing plants. The fish are unloaded at locations near the plants, where they are subsequently processed.



Whether fresh, frozen, smoked, canned or in the form of pate, the salmon moves on to its commercialization stage locally or in different markets, reaching destinations such as the United States, Japan or Brazil, among others.

# CERTIFICATION

Chilean salmon farming emphasizes the importance of certifications to ensure the quality and sustainability of its products.



**SMETA** (Sedex Members Ethical Trade Audit): Es una de las auditorías éticas más utilizadas a nivel global para evaluar prácticas laborales, impacto ambiental y ética de sus proveedores. Fuente: Sedex Global.



**ASC**, also known as Aquaculture Stewardship Council standards, was founded in 2010 by WWF and IDH. This certification guarantees respect for the environment and biodiversity, responsible management of resources and the implementation of high standards of quality, animal welfare and social responsibility throughout the production chain. It also aims to be the world's leading labeling and certification program for responsibly farmed seafood products. Source: Aquaculture Stewardship Council. **ISO** (International Organization for Standardization): ISO standards, such as ISO 9001 (quality management) and ISO 14001 (environmental management), are globally recognized for setting high standards in efficiency and commitment to sustainability in aquaculture production. Source: ISO.



**IFS** (International Featured Standards): It is a globally recognized food safety and quality standard that focuses on food safety and the quality of processes and products. IFS is used by companies around the world to evaluate the safety and quality of aquaculture products, including traceability and risk management throughout the supply chain. Source: IFS Standards.

**BAP** (Best Aquaculture Practices): Developed by the Global Aquaculture Alliance (GAA), it is a standard for companies around the world to meet rigorous criteria for sustainability, animal welfare, food safety and social responsibility in aquaculture globally.





**GLOBALG.A.** (Good Agricultural Practices): This standard is managed by a private organization that establishes safe and sustainable practices in

agriculture and aquaculture. It is internationally recognized and used in more than 100 countries. Its focus encompasses traceability, food safety, animal welfare, and environmental sustainability.

Source: GLOBALG.A.P..

**HACCP** (Hazard Analysis and Critical Control Points): The Hazard Analysis and Critical Control Point Certification is a preventive standard for food safety that identifies and controls contamination risks in the food production chain. It is recognized by international regulations, for example, the Codex Alimentarius, a book containing various standards, guidelines and codes of practice that protect consumer health and facilitate international food trade established by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO).



International Organization for Standardization







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