



**SALMON FARMING**  
**SUSTAINING COMMUNITIES**  
**AND FEEDING THE WORLD**

INTERNATIONAL SALMON FARMERS ASSOCIATION

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CELEBRATING 25 YEARS OF



GLOBAL SALMON FARMING.



“Not only has farmed salmon become a staple of healthy, nutritious and affordable diets, but our industry has become an economic driver and social mainstay of coastal and rural communities all over the world.”

SALMON FARMING:  
A GLOBAL SUCCESS STORY

**14.8 billion healthy meals every year.**  
**121,000 jobs around the world.**  
**\$10 billion (USD) global annual production.**

Those are the results brought about by the sheer will, unwavering belief, hard work and innovation of the world’s first salmon farmers.

Forty years ago outside the region of Trondelag in Norway, two brothers who were frustrated by poor fishing tried something different. They built a cage to grow Atlantic salmon in the ocean. In other parts of the world – Chile, Canada and Scotland – others were taking the first steps toward salmon aquaculture too. All these remarkable pioneers faced significant challenges, but refused to give up. Instead, they choose innovation and collaboration to overcome any obstacles.

It was those pioneers who started the strong, sustainable salmon farming industry we have today - one that provides impressive social and economic benefits and healthy food to communities around the world.

Just over twenty five years ago, representatives from the salmon farming associations in Chile, Norway, Canada, Faroe Islands, Scotland and Iceland founded the International Salmon Farmers Association. Those around the table that day in Vancouver, Canada shared a common belief that salmon farming is essential to supply the global demand for fresh Atlantic salmon and to help feed the world’s growing population. They knew working together would enable us all to face the challenges and opportunities of meeting that demand.

As we celebrate our anniversary, it’s time to reflect on what our industry has achieved and to look ahead to the role that salmon farming will need to play in helping to feed the world’s growing population.

Since the founders of ISFA first met, global salmon production has more than doubled. Today the world’s salmon farmers produce 2.1 million tonnes of salmon annually. The value of this production is impressive at \$10 billion US. Whether you are eating fresh salmon sushi, a grilled salmon fillet or smoked salmon, the odds are it has been farmed by a company

represented by ISFA, which today also includes Ireland, the United States, Tasmania, along with Iceland and New Zealand.

Not only has farmed salmon become a staple of healthy, nutritious and affordable diets, but our industry has become an economic driver and social mainstay of coastal and rural communities all over the world. Salmon farming employs thousands of people, generates billions of dollars into local economies and provides leadership and training opportunities for young people so that they can work and raise families in their home communities.

In addition to the direct jobs created on the farms, hatcheries and processing plants, our industry generates indirect jobs in feed manufacturing, packaging, transportation, research, veterinary medicine and the supply and service sectors as well as spin off jobs in retail and tourism.

The innovation and technology developed within the global salmon farming industry, especially in the feed sector, processing or other unique equipment contributes to the development of farming other marine and freshwater species. That means you now see companies traditionally associated with salmon doing business in Asia, South America and throughout Europe.

Salmon farming has come of age. It is now one of the most efficient protein producers in the world. Salmon farms fit within the natural systems, producing one of the healthiest foods with a minimal environmental footprint.

We’re proud to represent the industry. Our people are our strength. We know that their determination, hard work, innovation and collaboration will continue to be the foundation of the global salmon farming sector in the future.

Just like it always has been.

A warm salmon regards  
**Trond Davidsen**  
*President, ISFA*





# FOOD FOR OUR FUTURE

“We live in a world where almost one billion people starve every day, another billion suffer from malnutrition and yet a further billion suffer from obesity.”

Árni M. Mathiesen, Assistant Director General, Fisheries and Aquaculture, at the United Nation's Food and Agriculture Organization



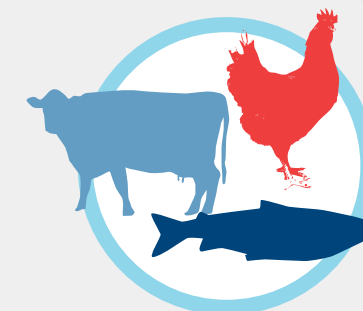
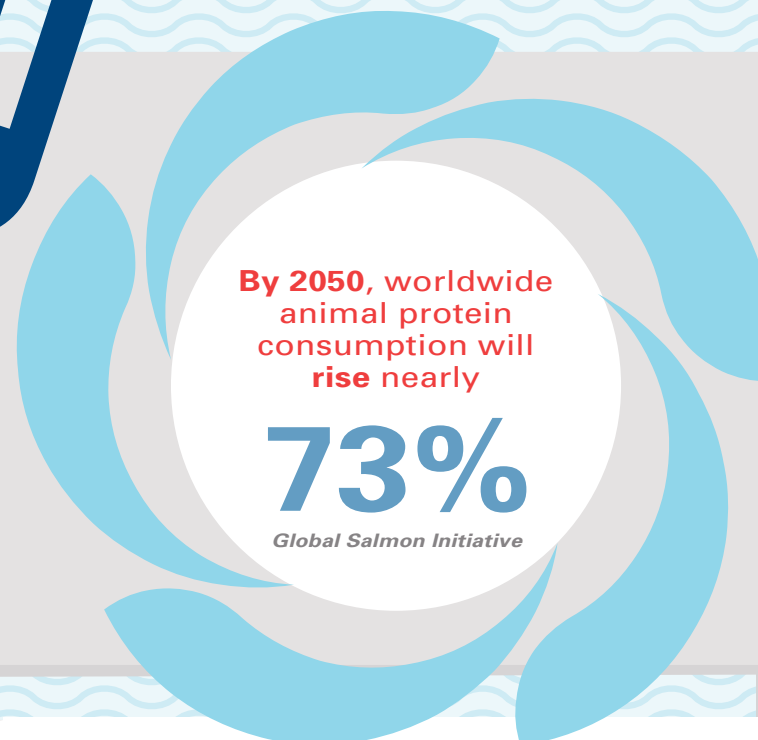
A SUSTAINABLE  
HEALTHY FOOD  
FOR A GROWING  
POPULATION



World population is  
outstripping food production

GLOBAL  
POPULATION  
EXPECTED TO RISE BY  
**2 BILLION  
BY 2050**

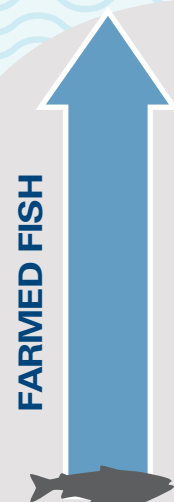
United Nations



THE AMOUNT OF **FOOD** THAT  
WILL BE **CONSUMED** IN THE  
WORLD IN THE NEXT 50 YEARS  
**WILL EXCEED**  
ALL THE FOOD EATEN IN THE  
REST OF HUMAN HISTORY

The United Nations Food and  
Agriculture Organization forecasts a  
global seafood shortage of

**50 – 80  
MILLION  
TONNES**  
by 2030  
United Nations



BEEF

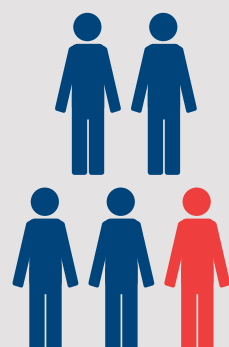


FARMED FISH HAS  
NOW SURPASSED BEEF  
IN WORLD-WIDE  
CONSUMPTION

Earth Policy Institute

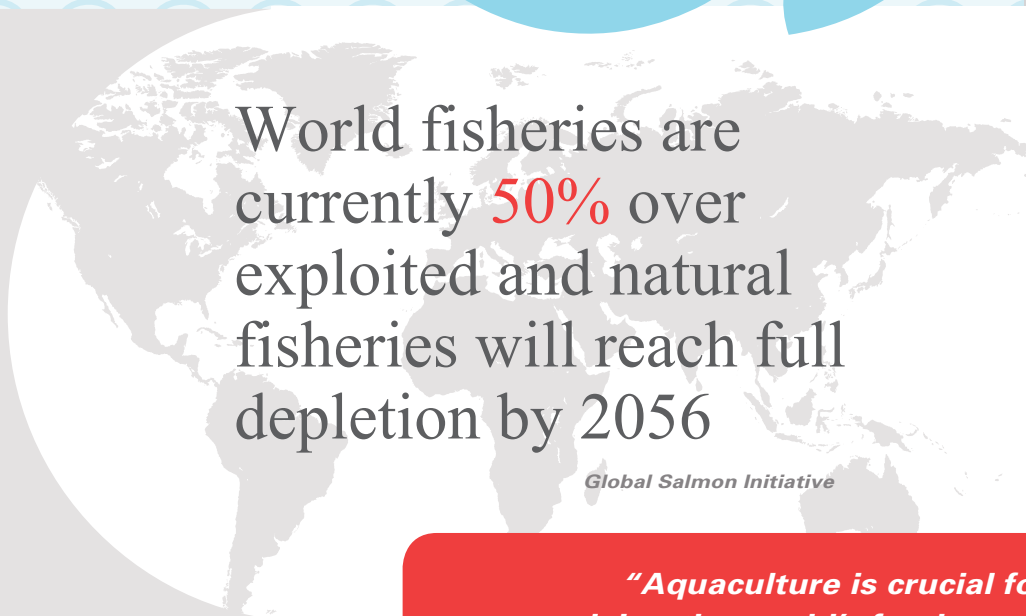


World food  
supply needs  
to double by  
**2050**  
(FAO PREDICTION)



**ONE IN FIVE PERSONS**  
worldwide relies  
on fish for their primary  
source of protein

**MORE THAN  
50%  
of all fish**  
and seafood consumed  
already originates from  
aquaculture.



World fisheries are  
currently **50%** over  
exploited and natural  
fisheries will reach full  
depletion by 2056

Global Salmon Initiative

**“Aquaculture is crucial for  
supplying the world's food needs  
for the next 50 years.”**

Former United Nation Secretary General Kofi Annan  
AquaVision, June 2012

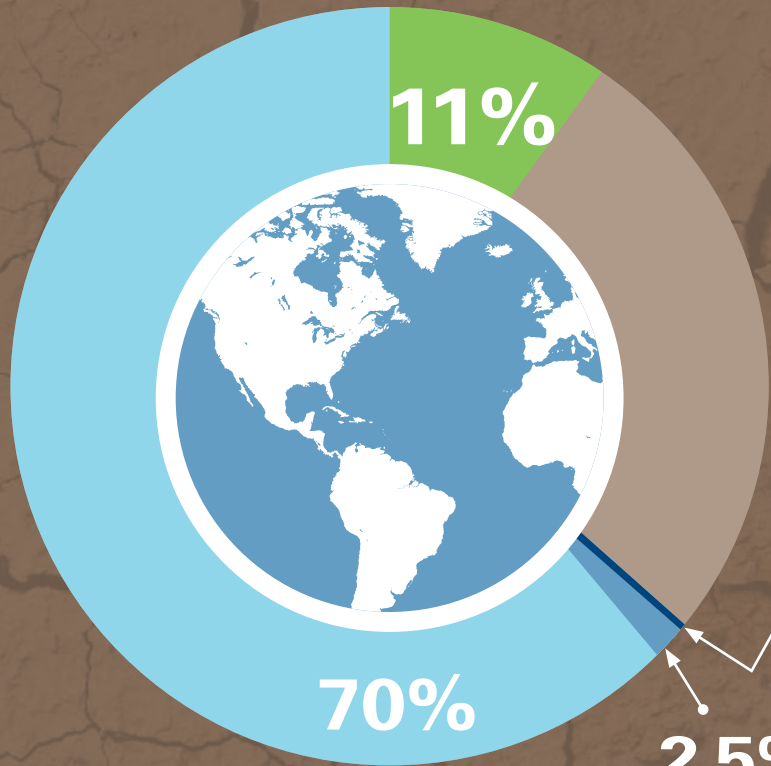
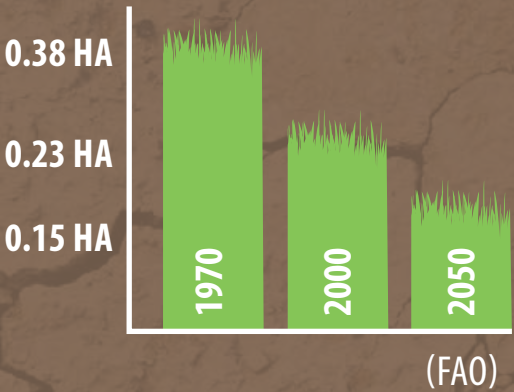


# LAND & FRESHWATER RESOURCES ARE SHRINKING

LAND FARMING ALONE CANNOT FEED THE WORLD

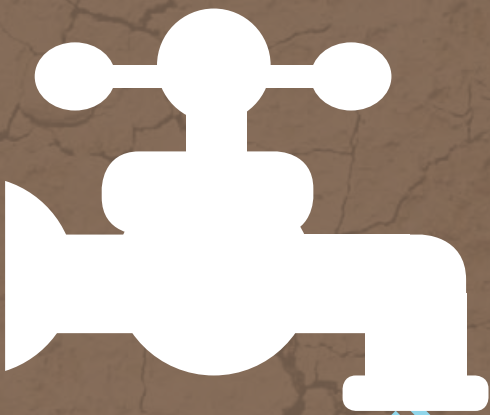


ARABLE LAND  
PER PERSON IS  
SHRINKING



- OCEAN
- ARABLE LAND
- FRESHWATER
- FRESHWATER AVAILABLE FOR USE
- LAND

6.8 billion  
people  
ARE RELYING ON  
.007%  
PLANET'S  
WATER

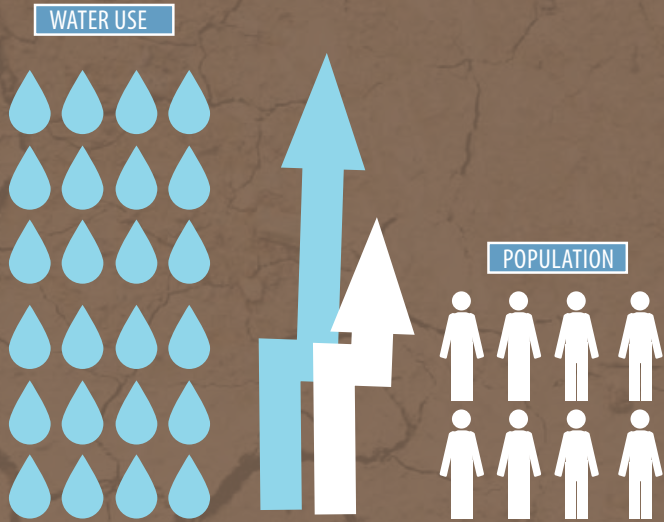


Water availability is  
expected to decrease  
in many regions.

GLOBAL  
AGRICULTURAL  
WATER  
CONSUMPTION

19%  
INCREASE  
BY 2050

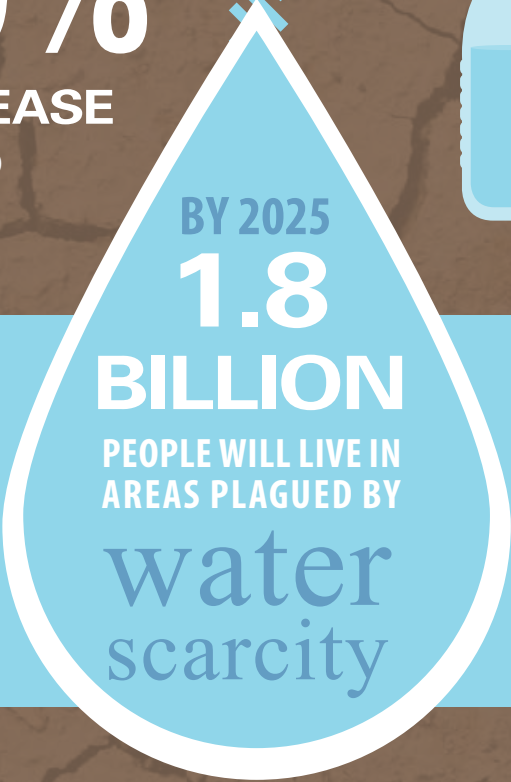
WATER USE HAS GROWN AT MORE THAN TWICE THE RATE  
OF POPULATION GROWTH IN THE LAST CENTURY. (UN)



EVERYDAY ONE PERSON



(FAO)



Water for irrigation and food production constitutes  
one of the greatest pressures on freshwater resources.

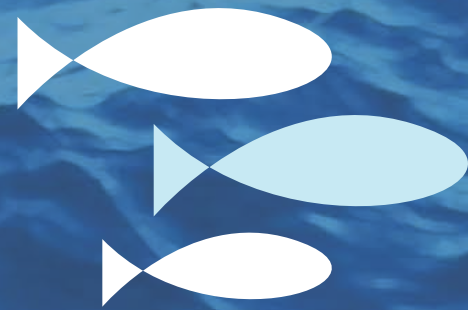
AGRICULTURE  
ACCOUNTS FOR

70%

OF GLOBAL FRESHWATER WITHDRAWALS

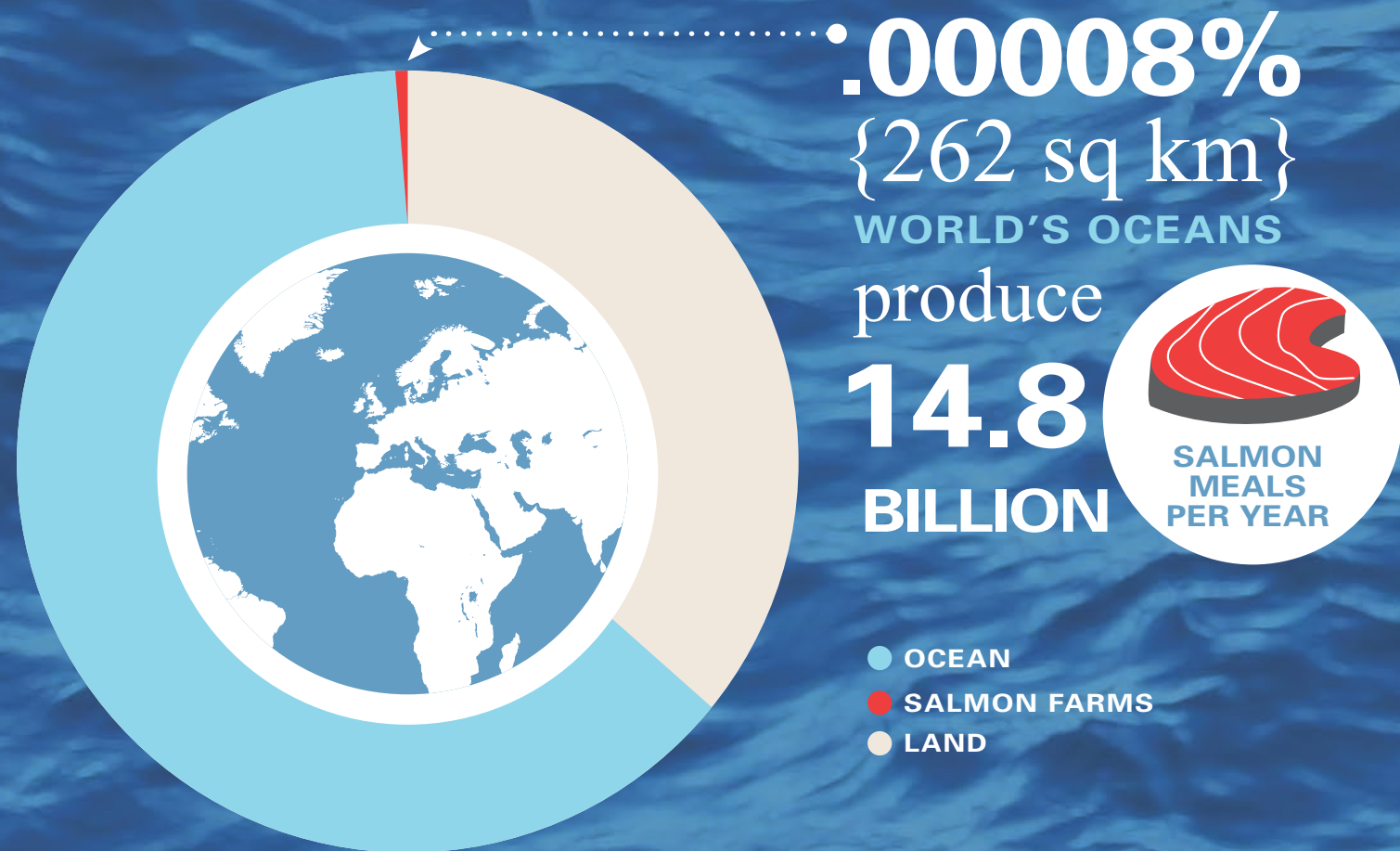


# Farming THE Ocean



Farming the ocean for finfish, shellfish and aquatic plants has been a way of life for people around the world for centuries.

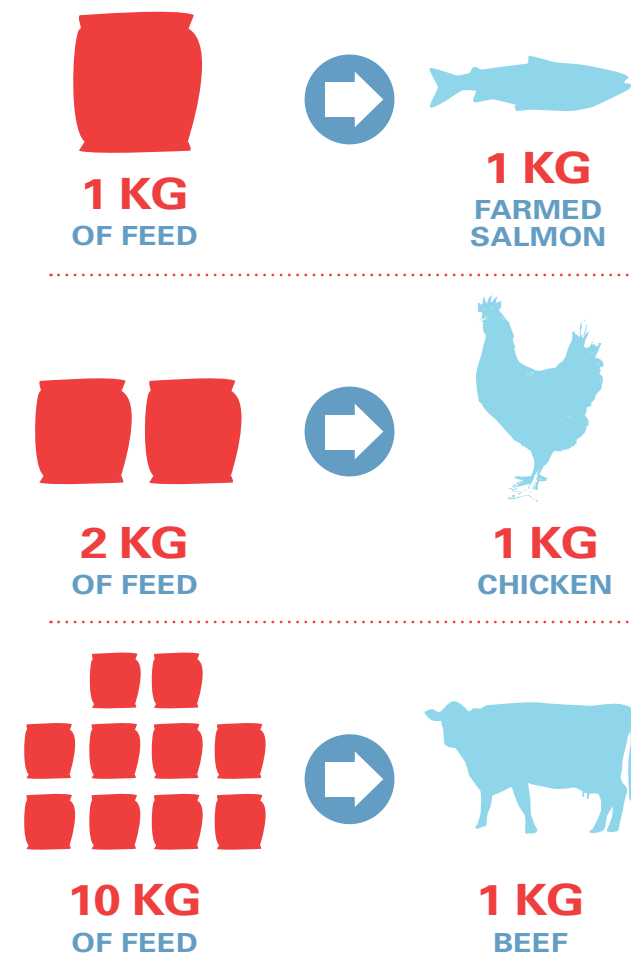
Salmon farmers from small, coastal communities in four continents grow salmon in the best place possible – their natural marine environment. They've farmed the ocean alongside traditional fisherman for nearly 40 years.



## HOW MUCH FRESH WATER DOES IT TAKE? (United Nations)



## SALMON ARE FEED CONVERSION CHAMPIONS



## SPACE VS RESULT





# Salmon: A Healthy Protein

Farmed salmon is one of the healthiest foods you can eat and it's available fresh year-round.

Eating salmon can help prevent heart disease, lower cholesterol and blood pressure, boost brain function and reduce the risk of cancer, stroke, depression, Alzheimer's disease, arthritis, Crohn's disease and asthma.



EATING OMEGA-3 RICH SEAFOOD LIKE SALMON CAN:

REDUCE THE RISK OF coronary death by **36%**

INCREASE life expectancy by **2.2** years

LOWER YOUR cholesterol

Prevent and slow the development of heart disease and help boost brain function



Contains no trans fat and has less saturated fat than beef or chicken



Salmon is one of the healthiest foods with a low calorie count



Needed to build and maintain every cell in the body



Helps in the formation and maintenance of bones and teeth, enhances calcium and phosphorus absorption and utilization



A factor in red blood cell formation



Helps energy metabolism and tissue formation



Phosphorus – Aids in the formation and maintenance of bones and teeth



Aids normal bone and tooth development and helps maintain the health of the skin and membranes



Helps energy metabolism and tissue formation



## SALMON BY THE NUMBERS

# 14.8 BILLION MEALS PER YEAR

**45,358**  
DIRECT JOBS

**75,554**  
INDIRECT JOBS

**\$10**  
BILLION  
(USD)  
GLOBAL SALMON  
PRODUCTION

**335**  
MILLION  
SQ KM  
OCEAN IN  
THE WORLD

**ONLY  
262**  
SQ KM  
OCEAN USED  
FOR  
SALMON  
FARMING

### GLOBAL SALMON FARMING

The growth of salmon farming has brought opportunity and prosperity to many of the world's coastal and remote areas, while producing one of the healthiest foods for a growing population.

Aquaculture is the world's fastest growing food producing sector, employing thousands of people in many countries and generating billions of dollars in revenue to local economies.

Our sector has made fresh, healthy salmon readily available all year round in markets around the world.



# STRENGTHENING COMMUNITIES

The global salmon farming industry produces **\$10 billion** (USD) worth of salmon each year but that does not include the significant spin-off jobs and economic prosperity the sector creates in coastal communities around the world.

The salmon farming sector helps drive rural economic diversification by directly and indirectly creating 121,000 jobs, further supporting small businesses and stimulating ongoing, transferrable research and development innovation.

Salmon farming may well represent the most promising approach to help revitalize our coastal communities and reverse the trend of young people leaving rural areas to work and live in larger urban centres. The majority of aquaculture jobs are full-time.



# SALMON FARMING'S RIPPLE EFFECT







## COMMUNITY SPOTLIGHTS

### THE ISLAND OF LOVUND, NORWAY

Forty years ago, the small island of Lovund was dying.

A beautiful island only 4.9 square kilometres in size, Lovund had only 200 inhabitants in 1970. The fishing industry had collapsed and now there was nothing to keep them in their community.

That's when two young teachers decided to start harvesting the ocean instead of fishing.

Salmon farming has reversed the fortunes of this island, creating employment and economic development and drawing people back to the community. Today Lovund's population is 422. Just recently, the municipality decided to build a new school. The average age of the island residents is only 29!

The teachers started with 1200 smolt; only four survived the first year. Lessons were learned and today seven 20-tonne trucks are filled with salmon on Lovund. That's 425 million dinners; a production valued at 1.5 billion Norwegian Krone. Income from salmon farming has resulted in new training facilities, asphalt, streetlights, fiber cable and new communication to the island.

This is how it is - but not just at Lovund. Salmon farming is an important economic driver along the Norwegian coastline and in local municipalities such as Herøy, Skrova, Skjervøy, Austevoll, Frøya or Hitra.

"Where would we all have been if not we had not started harvesting 40 years back?" says Aino Olaisen, the daughter of one of the Lovund teachers.

Because of salmon farming, people who live along Norway's coast can live and prosper in their communities while producing a healthy, sustainable food that is shipped all over the world.

We proudly say: Thank you, Mr. Salmon.



### THE WESTERN ISLES, SCOTLAND

The Western Isles are a remote group of islands off the west coast of Scotland, with a population of 27,500. Their economic position is relatively precarious, and the region is categorised as an economically "Fragile Area". In the early 1980s, when jobs were hard to find and population was dwindling, commercial scale salmon farming was established. Since then, the industry has grown to become a major employer, a significant source of investment and a vital contributor to the local economy and infrastructure.

Aquaculture in the Western Isles now provides around 550 full time equivalent jobs. Direct employment accounts for over 350 FTE jobs and £7m in salaries, with related activities such as processing, marketing and distribution providing a further 200 employment opportunities. Capital investment by industry in the region reached £7.5 million in 2012, bringing the total over the past six years to nearly £39 million. The industry has accomplished all of this as well as promoting a healthy and affordable food for local families.

Salmon farmers are integral to the community, supporting good causes across the islands, including cultural and sporting events, local clubs, schools and individuals. Workers also volunteer in vital roles as auxiliary coast-guards and fire-fighters, on community councils and for many local charities. School visits and talks allow children to become familiar with the industry which may well provide them with future well paid, skilled jobs close to home, helping to sustain the fabric of island life. Nearly 80 Modern Apprenticeships in aquaculture have been taken up by young people in Scottish rural communities.

Every opportunity is taken by salmon farming companies to preserve and enhance the social and physical characteristics of this island environment on which their successful development depends.

### KLEMTU, CANADA

In 1997, the Kitasoo/Xai'Xais First Nation invited Marine Harvest Canada to their remote coastal village of Klemtu, British Columbia, to see if the company was interested in a partnership to grow and process salmon in their traditional territory.

After learning about each other's needs and expertise, the company and Nation signed a protocol agreement and began farming and processing salmon in 1999. The eight page agreement covers the management of the risks, expectations, and benefits to each party and set the limitation to six farms. The Kitasoo/Xai'Xais is the farm tenure/lease holder while Marine Harvest is the licensee.

In a village of 400 people, salmon farming provides jobs for about 55 Kitasoo/Xai'xais members. There are 20 full time, farm technician and management positions; five workers on the Kitasoo owned harvest boats who work about eight months a year; 25 in the processing plant; plus, five more full time equivalent positions. A balance in production must be maintained between providing maximum employment for Klemtu and overwhelming the capacity of the community to fill the jobs.

While the remoteness of the village creates logistical challenges and higher costs to move materials and fish, the scale of operations and excellent growing conditions for salmon compensates for these additional logistical costs.

This was the first partnership of its kind on the B.C. coast and first formal agreement between First Nations and finfish farmers.

"This agreement set the standard for how we engage with other First Nations as we build our business and we now maintain formal relationships with 10 other First Nations," says Ian Roberts, Marine Harvest Canada's Communications Manager and former Production Manager for the Klemtu region.

Farming and processing salmon on six sites brings annual revenue of approximately \$1.5 to \$2 million into the community through wages and benefits.



### THE STRAHAN COMMUNITY AND MACQUARIE HARBOUR, TASMANIA

In 2013 Tasmania's salmon industry received state and federal approvals for new leases, enabling it to double farmed salmon production in Macquarie Harbour on Tasmania's West Coast.

This expansion project included relocation of existing marine farms, construction of new farms and development of an aquaculture hub incorporating shore based infrastructure. Salmonid farming is widely recognised as a long term and sustainable regional economic activity.

It is capital and employee intensive and as such, sustains local employment, skills and economic activity in regional and remote communities wherever salmon are commercially farmed. The expansion project is aligned with the State Government's Regional Economic Development plan for the North West Coast, and the overall Economic Development Plan for the State.

Improved economic conditions were immediately achieved in the Strahan community through the creation of employment during construction and operation. In time, the project will also lead to:

- new housing and residential land projects as a result of new employment opportunities;
- up-skilling of local work force and retention of these skills;
- reduced welfare expenditure in the region;
- increased residential population resulting in an increase in social services;
- increased tourism activity.

The relocation of a significant part of the shore based operations (mainly cage and net maintenance, feed handling and vessel storage) away from the Strahan town centre has also directly benefited the local community by reducing commercial traffic on the main street and equipment being stored in visual site of the main tourist route. The relocation of land-based aquaculture operations will also reduce heavy traffic in the tourism precinct, resulting in a safer pedestrian environment.

A community forum was established in January 2014, with 20+ participants from the local, community, local government and industry. The forum will meet at least two to three times a year to discuss opportunities and issues regarding salmon farming in the region. Furthermore, a \$60,000 per annum Strahan community grants fund has been established, with the first funds will be administered in late 2014.

The importance of aquaculture in such a remote community was highlighted most recently in July 2014, when salmon farming in Macquarie Harbour was identified by both the state and local government as "part of the solution" for finding employment for 200 retrenched miners in a West Coast community of 1,800.





## COMMUNITY SPOTLIGHTS



### CLARE ISLAND, IRELAND

Clare Island lies on the west coast of Ireland, the last dry land before reaching North America. It is home to 140-150 people and 11 out of the 25 staff working on Clare Island Salmon Farm are island residents. In 1987, a Norwegian company established the farm helped by islanders who returned home from the United Kingdom to work in the new business.

The farm itself stopped the slow extinction of island life and turned the community's prospects around. In a practical way, the return of jobs to the area meant the island's primary school which was in danger of closing down, retained a second teacher and built a new extension to accommodate 14 pupils. The island economy is based on traditional fishing, sheep farming and tourism with few year-round opportunities except the farm. Other communities to benefit include the island of Achill and nearby mainland ports where services to the farm are sourced. Clare Island salmon has won many awards and admirers and is a key feature of any meal served by the President or Government to visiting dignitaries to Ireland.

With the local development company involvement in the farm and the foresight of its founders in converting to organic production before anyone else in the world, this beautiful part of Ireland would be facing the dangerous precipice of unsustainable population and economics which have left many of its neighbours bereft of people.

### UNITED STATES

Both traditional salmon farming and stock enhancement programs have contributed significantly to the resilience and diversity of United States coastal communities.

In a number of coastal communities on both the west and east coasts, salmon farming is the largest employer and tax payer. Many U.S. coastal communities have been devastated by the collapse of traditional commercial fisheries. In these communities, an entire generation of working waterfront families has had to seek other employment.

Salmon farming and stock enhancement hatcheries have helped offset these losses and provided a viable way for working waterfront families to continue their maritime heritage. While the average age of a U.S. commercial fishing permit holder is 57 years old, the average age of a salmon farmer is 37. Salmon farming along with other aquaculture operations is fast becoming the new face of the working waterfront. In addition, many of the companies that provided goods and services to traditional commercial fisheries have diversified and now also provide goods and services to aquaculture operations. Estimates of the total annual value of these goods and services vary from \$500-600 million.

United States salmon farmers market almost exclusively in the U.S., the third largest seafood market in the world. More than 80 per cent of seafood consumed in the U.S. is consumed in restaurants. U.S. farmed salmon provides a locally grown, reasonably priced, high health, meal ingredient, vital to the U.S. tourism and restaurant industry. Based on a six ounce portion size, U.S. salmon farmers grow over 96 million healthy meals per year, feeding over 263,000 people per day.

### CHARLOTTE COUNTY, CANADA

In 1979, Lord's Cove in Charlotte County, New Brunswick was the site of Canada's first commercial salmon harvest. From a relatively new industry in 1980, the salmon aquaculture industry turned the tide on the economic future of this southwest Atlantic coastal region. From annual sales of \$1 million during the early 1980's to a production value today of over \$200 million, salmon has become New Brunswick's largest agri-food export.

At the same time, the salmon farming industry transformed Charlotte County from a high unemployment and low income area to one of relative prosperity within the province. The economy was once characterized by seasonal employment and limited opportunity; salmon farming and its supply and service industries offer year-round employment and good incomes in an export industry that has become the foundation of the local economy. All of the production companies are locally owned and operated and headquartered in the county as are an estimated 100 firms and businesses supplying goods and services. Over 16 per cent of the workforce of Charlotte County is employed as a result of salmon farming - almost 2,000 full time jobs. This means that in addition to employment income staying the region, so too are the annual expenditures made by the industry.

Salmon farming companies and their employees are passionate and hardworking people and make significant contributions to the social programs within the towns and villages of the county – vibrant community centres and programs, senior facilities, hospitals and clinics in addition to supporting local government and emergency services. Salmon farming brings prosperity and strengthens the socio economic future of all Atlantic Canada's coastal communities.



# FARMING FOR OUR FUTURE

## WE FARM

IN PURE, CLEAN, COOL, WATERS OF FJORDS, LOCHS, BAYS AND OPEN OCEAN SURROUNDED BY FORESTS, GLACIERS, MOUNTAINS AND ROCKY SHORES.

## WE SHARE

THESE WATERS WITH OTHER SPECIES OF MARINE LIFE AS WELL AS MANY SPECIES OF BIRDS, ANIMALS AND PLANTS THAT THRIVE IN THESE SAME NATURAL ECOSYSTEMS.

## WE WORK

TO MINIMIZE OUR IMPACT SO THAT WE CAN LIVE IN HARMONY WITH THESE ENVIRONMENTS THAT SUSTAIN OUR FISH, OUR PEOPLE AND OUR BUSINESSES.



Salmon farmers have always been dedicated to building a sustainable and responsible industry, a path that will continue as the sector further evolves to meet the growing need for healthy and sustainable protein sources.

Salmon farmers have developed a modern and responsible industry that meets international and national regulations and industry codes of practice. Key elements of modern salmon farming include:

- Area management
- Integrated fish health management
- Environmental monitoring programs

The salmon farming industry maintains close relationships with universities and science institutions, often working in partnership on projects to better understand fish biology and behaviour, biosecurity and fish health, environmental dynamics, recirculation systems, hatchery culture and ecosystem based farming.

A diverse science and research community has always supported the salmon farming sector and provided insight and guidance on the relationship between salmon production systems and the natural ecosystem.



Salmon farming companies around the world are involved with a variety of third-party certification programs that assure consumers that they are purchasing high quality, sustainably-produced salmon, grown in accordance with the best aquaculture practices. Salmon products can be traced back to the original farms where the fish was raised, including records of what they ate and how the farmer cared for them.

*Producing fish feed generates the least amount of greenhouse gases compared to feed for cattle, pigs and chickens. In fact, fish feed production generates six times less greenhouse gases compared to cattle feed and almost three times less than pig feed. (New England Aquarium)*





## SALMON – A GLOBAL INDUSTRY

### COUNTRY OVERVIEWS

#### NORWAY

The development of an industry responsible for 22,700 Norwegian jobs and fish delivered to 100 vastly different countries creating 12 million meals a day, gives rise to a host of stories.

The stories include portraits of brave pioneers, who in the shadow of the first Norwegian oil rigs, developed a second industrial fairy-tale: Norwegian aquaculture.

The industry also has a long history at the local level as the businesses it embraces form the cornerstone of many Norwegian coastal communities. Last, but not least, aquaculture is likely Norway's most important response to the challenge faced by the world today: to produce sufficient, healthy food for a rapidly growing population.

Today, each job in the core activity of the Norwegian aquaculture industry creates two more jobs in other Norwegian businesses or industry. Each krone created in the core activity of Norwegian aquaculture creates 1.48 krone in value creation in another areas of the Norwegian economy (Sintef, 2009).

Norway's long coastline includes islands and deep fjords, and extends for more than 83,000 kilometres - a distance twice as long as the Earth around the Equator. Norwegian waters are excellent for both fishing and aquaculture. Norway is a fishing nation with long traditions of harvesting the fruit of the sea. That harvest now includes farms.

Aquaculture makes it possible to offer seafood regardless of the seasonal variations that limit traditional fisheries. The industry and public authorities work together to manage these natural conditions, so aquaculture can be developed within a sustainable framework.

Just like the Vikings did 1000 years back, travelling around for new adventures, we've got our salmon today as the last Viking.

#### CHILE

Chile is the second biggest salmon producer in the world. After copper and fruit, salmon is Chile's largest export.

Salmon has become one of the most important drivers in Chile's constant and successful national exporting growth over the past 20 years. In 2013, salmon represented 4.5 per cent of the total Chilean exports after copper, 80 per cent of the exporting total for the further south regions and more than 20 per cent of the total this country's food shipments.

The salmon farming industry supplies more than 70 international markets, fulfilling the most demanding International quality certifications with emphasis on security, occupational health, food and environment safety. In this way, Chile offers the world a sustainable and quality product that is one of the healthiest and most nourishing foods for human health.

Salmon farming production is concentrated on four south regions of the country: La Araucanía, Los Lagos, Aysén and Magallanes. In Los Lagos and Aysén, salmon farming has become the main developing activity of the regional economy and the most important source of employment for its inhabitants. It has also incorporated youth and women to the workforce.

Thanks to the production chain the sector creates, these areas have achieved significant improvements in infrastructure and connectivity, as well as an increase in educational opportunities for new generations and a significant improvement in the quality of life for its inhabitants.





## COUNTRY OVERVIEWS

## COUNTRY OVERVIEWS

### CANADA

Farmed salmon is by far the most important finfish species grown by Canadian aquaculturists. Farmed salmon accounts for over 80 per cent of volume and value of total finfish produced by Canada's aquaculture industry.

British Columbia, on the west coast of Canada, produces about 58 per cent of Canada's total farmed salmon production – while New Brunswick accounts for 24 per cent, Newfoundland for 13 per cent and Nova Scotia for 5 per cent. Most farmers produce Atlantic salmon, although Coho and Chinook Pacific salmon is also farmed in British Columbia.

Canada's salmon farming industry provides more than 10,000 jobs, the majority of which are located in rural, coastal and Aboriginal communities. The industry has proven to be a revitalizing social and economic force in many of these communities, providing meaningful year-round employment.

One of the unique aspects of the salmon farming sector in Canada is the close partnership opportunity it offers with Aboriginal peoples. First Nations in at least three provinces have taken a direct role in aquaculture development within their traditional territories. While British Columbia First Nations lead the way, Aboriginal participation in salmon farming is also occurring in Nova Scotia and Newfoundland.

Canada's farmers not only comply with rigorous federal, provincial and local regulations, but all salmon farming companies in Canada have now achieved some form of independent third party aquaculture certification, including organic. Certification is a trusted "stamp of approval" demonstrating that Canadian farmed seafood products meet comprehensive food safety, environmental and social standards.

Canada's salmon farmers are proud of their role in supplying the world's food needs with a healthy nutritious protein. They are united advocates of sustainable growth for the sector and are committed to working in partnership with government and stakeholders, both domestically and abroad, to unlock the full range of economic, environmental and public health benefits that flow from a competitive, sustainable and growing farmed seafood sector.

### SCOTLAND

Since its pioneering beginnings in 1973, when some 50 tonnes were harvested, production of Scottish farmed salmon has risen from 28,000 tonnes in 1989 to 152,000 tonnes in 2013, accompanied by an increase in farm-gate value from £98M to £633M.

Exports of Scottish farmed salmon have soared from 8,700 tonnes in 1989 to 88,472 in 2013, with a value of £450M, making it Scotland's largest food export.

This growth is underpinned by a focus on scientific research and innovation to improve husbandry techniques and fish welfare, as well as preserving the pristine environment on which the industry depends.

In addition to complying with stringent European Union and national regulation, Scottish producers subscribe voluntarily to many production standards, such as Label Rouge, GlobalGap and Freedom Food which apply rigorous quality, environmental and fish welfare criteria. The Code of Good Practice for Scottish Finfish Aquaculture is adhered to by over 90 per cent of producers, ensuring that the industry continues in its shared development of best practice and that Scottish salmon maintains the premium standards consistent with current and future sustainable development.

In line with the expanding markets, the Scottish salmon industry plans to increase production by an average of three to five per cent per annum over the next five years. This sustainable growth will be accompanied by developments in farming systems and equipment designs, including new technology which will allow farms to operate further offshore. This will involve substantial industry investment and the creation of long-term jobs in remote areas of Scotland.

### UNITED STATES OF AMERICA

Salmon farming in the United States of America occurs on both the west and east coasts. While the combined production of these areas is modest by world standards, salmon farming has played a critical role in diversifying the economic base of traditional coastal communities and preserving endangered working waterfronts.

Growth of the U.S. salmon farming sector has been constrained by some of the strictest environmental regulations in the world, a limited number of biologically appropriate sites and extensive development of seasonal, recreational residences in coastal communities. Operating within this context, U.S. salmon farmers have developed sophisticated Best Management Programs designed to minimize environmental impacts and increase social acceptance.

Beginning in 1981, U.S. salmon farmers in cooperation with regulators developed a standardized set of environmental monitoring protocols and methods designed to ensure farms were operating within the local carrying capacity. In 1992, U.S. salmon farmers pioneered the use of third party verification of BMPs and the development of cooperative agreements with the environmental community. These efforts continue today through the implementation of a continuous improvement program.

On the west coast, in addition to traditional salmon farming, significant levels of stock enhancement occurs using aquaculture methods. A total of 181 hatcheries release over three billion Pacific salmonid juveniles annually. Aquaculture enhanced stocks form the basis for substantial commercial and recreational fisheries in California, Washington, Oregon and Alaska. Collectively these fisheries annually generate \$1.2 billion in first point of sale revenues. While percentages vary between states, river systems and over different years, on average 45 per cent of these fisheries are directly dependent on stock enhancement hatcheries using aquaculture methods.

### FAROE ISLANDS

The Faroese aquaculture industry has a long and proud history, with roots dating back to 1967. This heritage, combined with ideal natural conditions and a commitment to sustainability and quality, is now recognized around the world, and salmon from these small islands in the middle of the North Atlantic are exported to six continents.

The high demand for farmed salmon from the Faroe Islands, combined with the relative small size of the archipelago and the country's historic commitment to long-term sustainability, means that Faroese producers have a hard time satisfying demand. Farmed salmon is a vital part of the Faroese economy, representing more than 30 per cent of the country's export and providing valuable jobs for rural communities.

The aquaculture industry in the Faroe Islands is well consolidated, both horizontally and vertically. Only three companies that produce and export farmed salmon from the Faroe Islands. The vertical integration allows producers to have full control over the quality of the salmon from roe to export. Although the Faroe Islands is located in the middle of the North Atlantic, fresh salmon from the Faroe Islands can reach the U.S. market within just 72 hours of harvesting.

### ICELAND

Iceland first began to grow salmon in ocean net pens in the fjord Hvalfjörður on the west coast of Iceland in 1972.

The number of farms increased in the late 1980s but by end of the 1990s, only one farm continued to produce salmon in ocean net pens. Instead, the bulk of the production was moved to few land-based farms. The history of land-based salmon production in Iceland started in 1978 and by the late 1980s, a few big land-based farms were built for the purpose of salmon production. Production peaked at about 7000 tonnes between 2004 and 2006. Today, only a few land-based facilities remain in production due to bankruptcies mainly caused by excessive investment in the facilities and falling salmon prices due, in part, from growing global salmon production. In 2010, salmon and rainbow trout operations in ocean net pens were again established in west fjords and in 2012 in the east fjords. These operations are now the main producers of salmonids in Iceland, and the salmon harvest is expected to exceed arctic char by 2015.

In 2014, Iceland's production is expected to reach 4,000 tonnes. In addition to salmon for food, Iceland exports eggs on a year-round basis for aquaculture operations.





COUNTRY OVERVIEWS

COUNTRY OVERVIEWS

IRELAND

Salmon have been farmed in Ireland since the early 1980s, taking advantage of the combination of fast flowing sites and adjacent sheltered bays on the west, south west and north west coasts.

Ireland specialises in offshore farming techniques with the move to more exposed sites in the 1990s and also pioneered organic production with the certification of the world’s first organic salmon farm, Clare Island.

With a relatively small domestic population, Ireland’s salmon industry has relied largely on export markets and a network of artisanal traditional salmon smoke-houses. It has moved almost all its production into organic production, having pioneered the concept of preventative husbandry methods to tackle sea lice problems using Single Bay Management.

All Irish farms are inspected 14 times a year under a national pest management plan which forms part of the production licence. Obtaining sufficient licences from a state system which historically and politically has refused to recognise the benefits or potential of its marine economy has been the main difficulty for the sector in Ireland. European Habitats regulations which were not properly implemented by successive governments left the industry vulnerable to the impacts of European Union court cases against the government by NGOs thereby slowing down the system of licencing to almost a complete halt in the last decade.

Despite the lack of political support or foresight to aquaculture in general, both salmon and shellfish producers have responded very well to high market demand. Targeting niche and specialist markets with low volumes and high prices, Irish salmon is exported mainly for processing on continental Europe or smoked in Ireland for export at prices exceeding wild salmon in many cases, due to reputation and consistency. With salmon rivers – particularly those on the east coast where there are no farm operations – increasingly under pressure with dwindling stocks, consumers are becoming acutely conscious of the need to preserve the wild resource using high quality alternative from long-established farms. With 5,631 Km of coastline, Ireland is well-placed to sustainably increase production in coming years to meet continued demand and play an important role in peripheral coastal communities.

NEW ZEALAND

New Zealand is the world’s largest producer of Chinook (King) salmon, considered the champagne of salmon, with a 2013 harvest of 12,000 tonnes accounting for roughly 70 per cent of total global production.

The premium species of salmon, King Salmon is prized for its characteristic rich flavour, delicate soft texture and high Omega-3 content. King Salmon is more challenging to farm than Atlantic salmon, but yields a revered product that typically achieves a premium over the Atlantic variety in most markets.

Last year, the New Zealand salmon industry generated approximately US\$125 million in revenue and provided employment for over 500 hundred Kiwis.

Our King salmon are farmed in the pristine, colder waters off the South Island with the majority in sea pens in Marlborough, Canterbury and Southland regions and three small fresh water farms operating in the McKenzie Country hydroelectric-canals. The farms are located in areas selected for their isolation, water quality and flow.

Core to the industry is an uncompromising commitment to the responsible management of its resources. The country’s Environmental Codes of Practise are independently recognised as world-leading while low stocking densities and world-class animal husbandry practices ensure the welfare of our fish and the quality of our product.

King Salmon were introduced as ova early in the 1900s from California to establish a recreational fishing run. A group of dedicated and innovative pioneers first began farming King Salmon in 1970s.

Over the decades, the industry has developed a proud history as a professional, specialised and quality food production sector focused on environmental sustainability, food safety and value added marketing.

TASMANIA

Salmon farming commenced in Tasmania in the mid-1980s after a report to the Tasmanian Fisheries Development Authority concluded that a salmon farming industry could be successfully developed in Tasmania.

As a result, in 1984, fertilised Atlantic salmon eggs were purchased from the Gaden Hatchery (Thredbo River, Jindabyne, New South Wales, Australia), which were from stock originally imported in the 1960s from Nova Scotia, Canada. A sea farm was established at Dover in the south of Tasmania and a hatchery was developed at Wayatinah in the central highlands.

The first commercial harvest of 53 tonnes was in the summer of 1986/87. The Tasmanian industry now produces almost 45,000 tonnes per annum. Of the eleven companies that began farming salmon in the mid 1980s, four remain.

Tasmania’s primary industries are the engine room of its economy and salmonid (Atlantic salmon and Ocean trout) aquaculture has the potential to significantly power Tasmania’s economic growth. The Tasmanian salmonid industry has contributed to Tasmania’s reputation as a quality producer of fine foods. Farmed salmonids have become the leading farming activity in Tasmania ahead of dairy, vegetables, poppies, pyrethrum, beef, fine wool, wine and the once iconic apple industry. It has become a standout Tasmanian brand icon.

The industry continues to experience strong sales momentum despite the current challenging economic environment. Approaching \$550 million at wholesale levels, sales are proving resilient. The salmon and trout farming industry currently create over 1,500 direct jobs and \$190 million to the Tasmanian Gross State Product.

Tasmania prides itself on its clean, green environment, and it is in the crystal clear waters of its many delightful waterways, where we grow some of the world’s finest salmon.

Tasmanian Salmon growers employ world best practice in their farming techniques and their dedication to quality processes can be seen, and tasted in the fine texture and flavours of this exquisite seafood delicacy.



INTERNATIONAL SALMON FARMERS ASSOCIATION

The following organizations contributed to the development of this report:

- NORWEGIAN SEAFOOD FEDERATION
- SALMON CHILE
- SCOTTISH SALMON PRODUCERS ORGANIZATION
- CANADIAN AQUACULTURE INDUSTRY ALLIANCE
- ATLANTIC CANADA FISH FARMERS ASSOCIATION
- NEWFOUNDLAND AQUACULTURE INDUSTRY ASSOCIATION
- BRITISH COLUMBIA SALMON FARMERS ASSOCIATION
- FAROE ISLAND SALMON FARMERS
- TASMANIAN SALMONID PRODUCERS
- MAINE AQUACULTURE ASSOCIATION/USA
- IRISH SALMON GROWERS ASSOCIATION
- NEW ZEALAND SALMON FARMERS ASSOCIATION INC.
- ICELANDIC AQUACULTURE ASSOCIATION

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