

# Why Farm Salmon?

- About 70% of the global salmon supply is farmed
  - Generally farmed in netpens in protected and sheltered waters such as fjords and bays
- Salmonids (salmon, trout) provide about 4.2% of global seafood supply
- Farmed production is increasing and passed wild salmon in 1999
- Wild salmon catch varies between 700,000 and 1,000,000 tons (GWE) per year
  - In 2014 farmed salmonids supply exceeded 2 million tons gutted weight equivalent (GWE)
  - In 2014 wild salmon catch volume was about ¼ of farmed supplies
- Farmed Atlantic salmon produces a stable supply of seafood year round

## History of Salmon Farming

- Started in the UK in 19<sup>th</sup> century for stocking for recreational fishermen.
- Experimental sea cage culture started in the 1960s in Norway
- Commercial aquaculture of Atlantic salmon in Norway started in 1980s
- Success in Norway led to development in Scotland, Ireland, Faroe Islands, Canada, North East US, Chile, and Australia (Tasmania)/New Zealand
- In early 1980s, Atlantic salmon was introduced to Chile from Norway and Scotland
- By the 1990s Chile became a major producer due to low production costs and access to fish meal for salmon feed
- Today the top aquacultured Atlantic salmon producing countries are in order: Norway, Chile, Scotland/UK and Canada.
  - Main markets for Norwegian salmon are the EU and Asia, some is beginning to enter the US.
  - Main markets for Chilean salmon are the US, South America and Asia
  - Main market for Scottish salmon is within the UK with limited exports to the US
  - Main market for Canadian salmon is the US

## How Farm Salmon?

- Production takes about 2 1/2 to 3 years
- Salmon spend first 12-18 months in fresh water from hatching until reaching smolt size of about 100g, when they are large enough to be moved to salt water
- Salmon spend up to 2 years in ocean pens before they are harvested

## Salmon Feed

- Globally salmon feed has reduced use of fishmeal and fish oil from 59% and 24% in 1990 to 12-15% and 7-9% in 2014, respectively
- Wild salmon get their pink/red color from eating krill and other shellfish containing the carotenoids astaxanthin and canthaxanthin. Farmed salmon eat feed containing astaxanthin to give them a pink color

## Sustainability

	Farmed Salmon	Poultry	Pig	Cattle
Feed Conversion Ratio (FCR)	1.1	2.2	3.0	4.2-9.8*
Protein Retention	24%	21%	18%	15%
Edible Yield	68%	46%	52%	41%
Edible Meat per 100 kg feed	61 kg	21 kg	17 kg	4-10 kg
Water Use (liter per kg edible meat)	1400 liter	4300 liter	6000 liter	15400 liter

Sources: Ytrestøyl et. al. (2014), National Beef Association UK (2014), Volden, H and N. I. Nielsen, (2011) Energy and 14 metabolizable protein supply, [www.journalofanimalscience.org](http://www.journalofanimalscience.org), Skretting (2012) Delivering SUSTAINABLE FEED SOLUTIONS for aquaculture, SINTEF Report (2009) Carbon Footprint and energy use of Norwegian seafood products

\* Depends on feed (finished on cereal or grass)

