

Executive Summary of Coho Salmon (*Oncorhynchus kisutch*) Production

Species Information:

Coho salmon are native to the coastal area of the North Pacific Basin, however there have been failed attempts to establish naturalized populations into many areas of North America, Asia, Europe and Latin America. Self-sustaining stocks have been reported in the Great Lakes of America and in Chile, where they are a major species in a rapidly expanding aquaculture industry. They range from 6 to 9 pounds on average but can be upwards to 18 pounds.

Industry Information:

Coho salmon is both farmed and caught in the wild, in which there was an annual production of approximately 172 tonnes in 2014. Chile is primarily responsible for most of this production, while the minor producers are Japan and Canada. The primary market for farmed coho salmon is Japan and while a minor market is the United States of America. Over half of Japan's imports include frozen Chilean Coho salmon. In Chile, production costs approximately from USD 1.40–1.70/kg live weight, excluding harvest, transport, and processing. They are sold on average of approximately \$1 per pound.

Market Products:

There are many product forms that Coho salmon are sold in which include: fresh (headed and gutted (H&G), with or without skin de-boned fillets), frozen (H&G with or without skin and de-boned fillets and portions and steaks) and smoked. Portions and fillets can be vacuum packed, which increases shelf life. The yield from each fish tends to be 50-55% from whole fish to boneless fillet.

Production Issues:

In many parts of the world salmon farming is considered controversial due to its potential impacts on the environment and human health. Some concerns include nutrient loading from organic wastes through feed and faeces, accumulation of heavy metals such as zinc and copper, introduction of non-indigenous salmonids on local ecosystems and contamination of chemicals and chemotherapeutants used in farming practices. There are also many diseases, however there are some that have no treatments such Infectious Salmon Anaemia (ISA) caused by the Orthomyxovirus agent. This poses as a significant issue if biosecurity is not maintained and the water gets infected with the virus. On average, the mortality from ISA is about 30% on any given farm, ranging upwards to 90% depending on the strain of virus. Many diseases such as Salmon Rickettsial Disease (SRS), Furunculosis, Enteric redmouth Disease (ERM) and Vibriosis can be treated either with antibiotics or vaccines or a combination of both, which pose a lesser threat. Some other defects within the salmon include pale meat colour, soft and gaping flesh and poor trims due to trimming errors.

Production Systems:

The production for Coho salmon works in 2 steps in which they are grown to the smolt stage in tanks or raceways, and after that they are moved to lake cage systems. Up until the smolt stage, they are usually maintained in ambient water temperature and natural photoperiod regimens to produce smolts in the spring of the year of hatching. However, temperature and photoperiod can be manipulated to induce early smoltification. Once the fishes smolts, they generally weigh 30–80g and then they are transferred to the sea. At the sea, the fishes are placed in cages, constructed of high-density polyethylene or steel, consisting of large nets suspended from floating structures

anchored to the seabed. Coho salmon remain in seawater for 10–12 months and are harvested after reaching 2.5–3.5 kg.

Feed Nutrition:

Feeds are pelleted using the process of extrusion, which contain various mixtures of oilseed meals (e.g. cottonseed meal, soybean meal), fish meal and fish oil. They also contain various grains (e.g. wheat, corn), supplemented with essential vitamins and minerals. Naturally-occurring carotenoid called astaxanthin is also added to the feed mixture gives them the pink colour. Modern feeds for coho salmon typically contain 29–30% lipid and 40–43% protein, which is efficiently converted to flesh, often at food conversion ratios below 1:1.