

The use of Marine Resources in New Zealand Salmon Farming

Background

Farmed salmon in New Zealand are fed manufactured diets that contain fishmeal and fish oil. This document summarises some key facts on the use of these materials.

Global fishmeal and fish oil supply

Fishmeal can be divided into two classes – trimming meals (by-products of fish caught for human consumption, e.g. the frame) and reduction meals (from fish caught and processed whole for the purpose of making fishmeal and oil). Fish oil is produced during the fishmeal manufacturing process. The majority (>80%) of fishmeal used in the NZ salmon industry comes from reduction fisheries, primarily the Peruvian anchovy fishery.

Anchovy and other reduction fisheries are often resilient to fishing pressure because they involve fast-growing and short-lived species. The Peruvian anchovy fishery is generally regarded as well managed and sustainable (e.g. <http://www.fishsource.org/>), but like all fishmeal sources, is fully exploited. There is no possibility of more fishmeal and fish oil being produced in the world than is currently being produced.

As a result of lack of supply and increasing demand, prices of fishmeal and fish oil continue to rise and there has been huge investment by the international aquaculture industry towards discovering how to make fish diets that use less fishmeal and fish oil, while still producing healthy fish that are good to eat. Typical substitutes used in the NZ salmon industry are plant proteins and oils and by-products from the poultry and meat industries, from animals raised for human consumption.

Fishmeal and Fish Oil use in NZ Salmon Farming

The figures given here are based on typical average farming practice and real diet formulations used in the NZ industry. It can be seen that a great deal of progress has been made in reducing reliance on marine resources in NZ salmon farming.

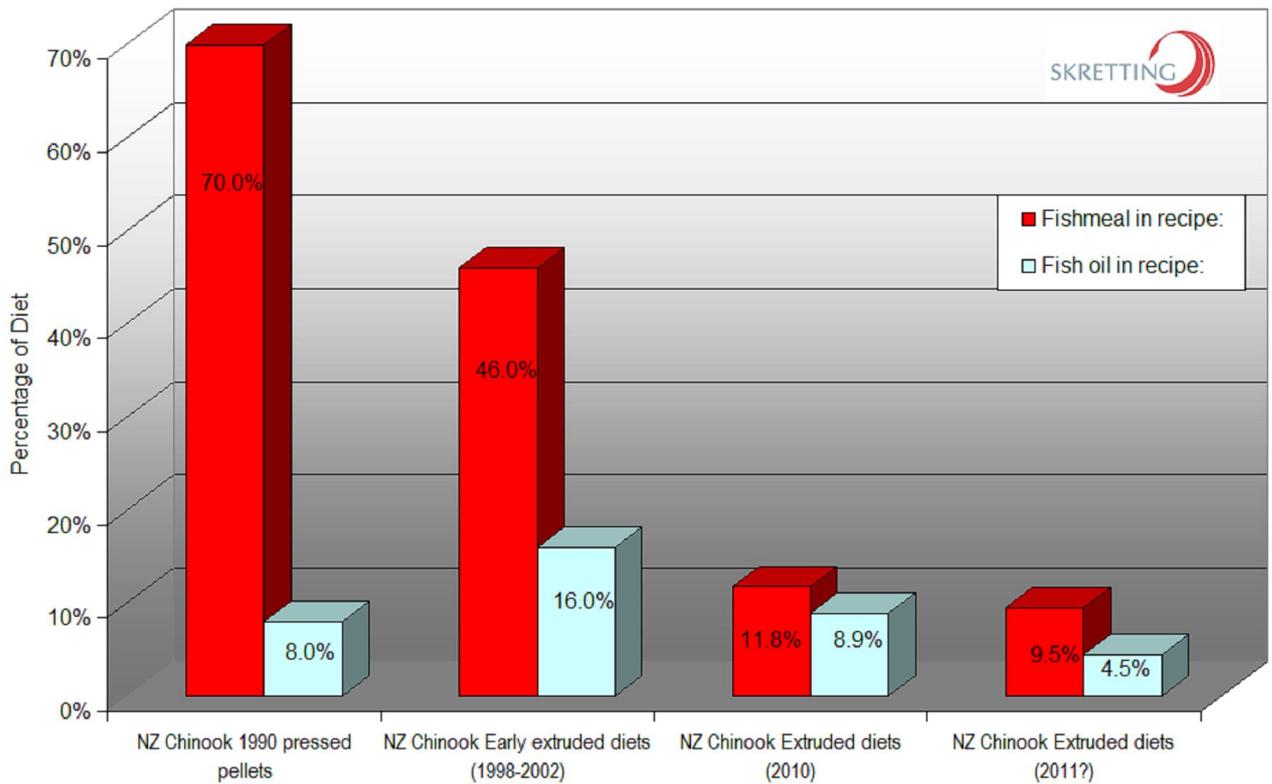


Figure 1. Fishmeal and fish oil inclusion in diets used in NZ Salmon farming, including meals from trimming meals. Research on fishmeal and fish oil replacement has allowed the use of marine ingredients to be greatly reduced, while still maintaining fish health and quality.

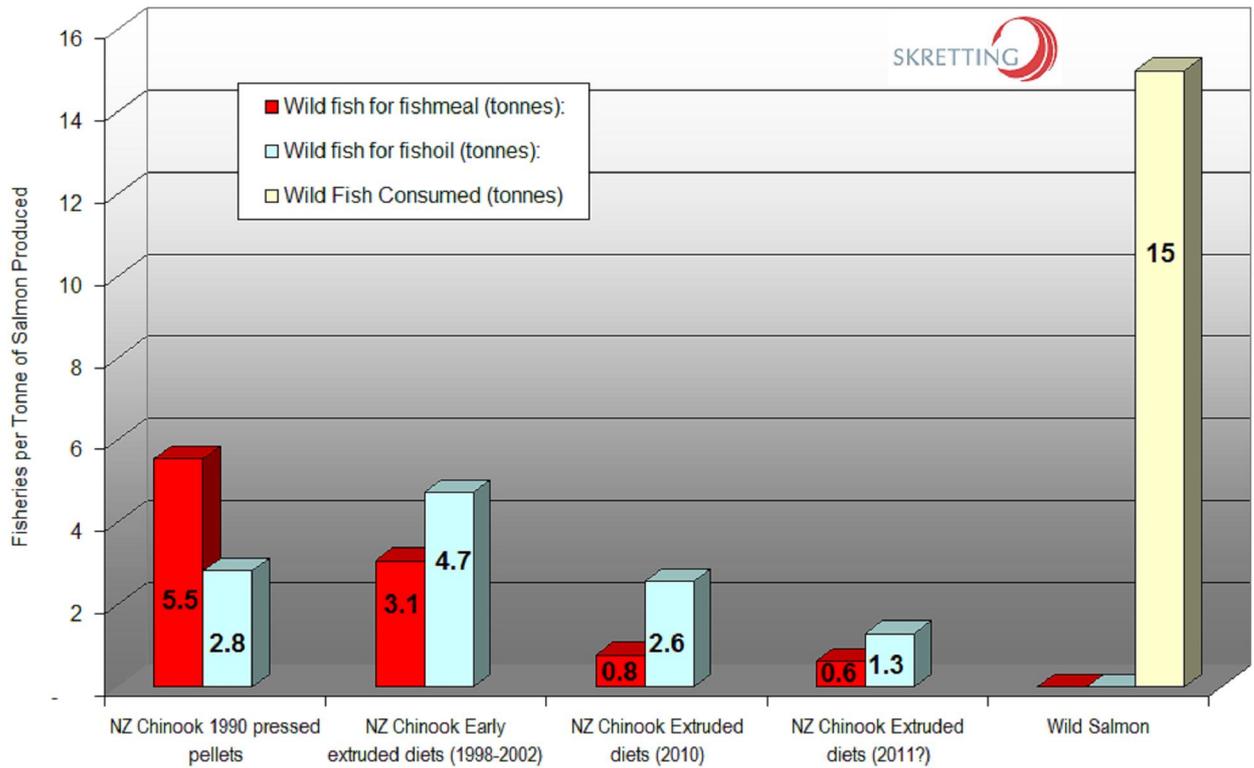


Figure 2. Tonnes of wild fish required to produce one tonne of farmed NZ Salmon (excludes trimming meals which were not caught for the purpose of producing fishmeal). Note that the fish used for fishmeal and fish oil overlap – the same wild fish yield both fishmeal and fish oil, separate fish are not caught for each. For comparison the wild fish needed to produce one tonne of wild salmon is shown (thought to be between 10 and 20 tonnes consumed per tonne of wild salmon produced).

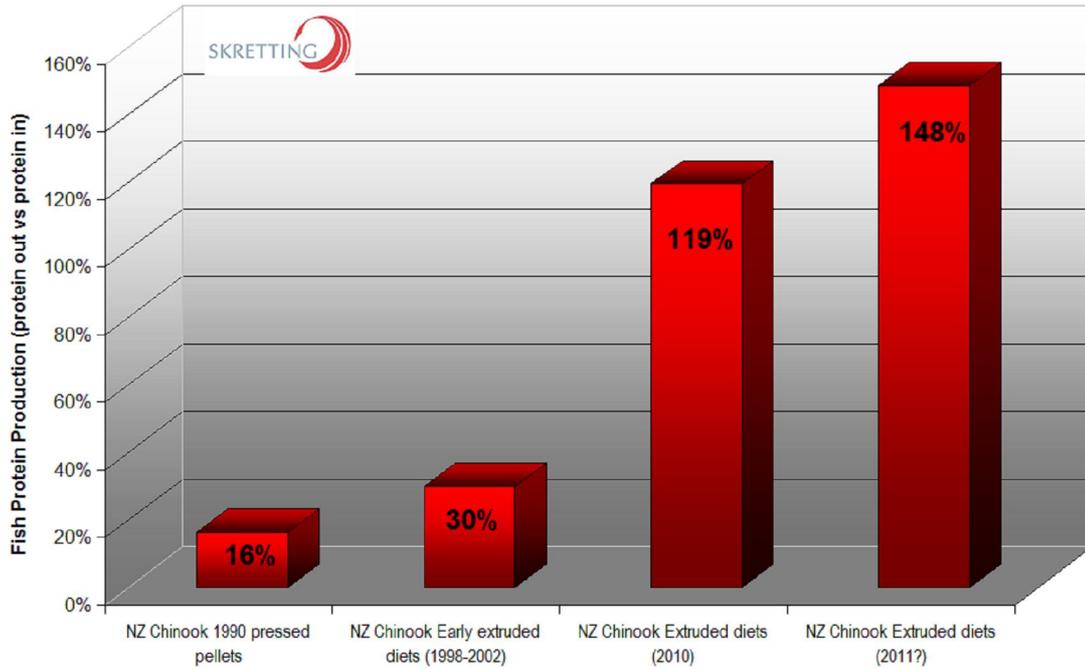


Figure 3. NZ Salmon farming currently produces more fish protein than it consumes. For every tonne of fish protein consumed, 1.19 tonnes is produced.

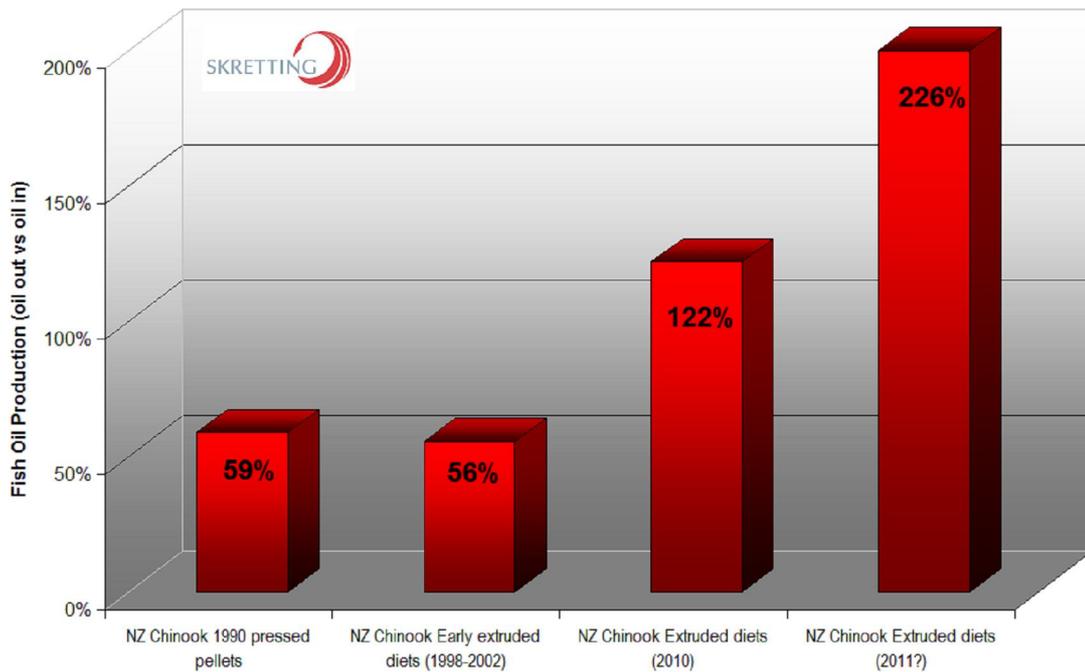


Figure 4. NZ Salmon farming currently produces more fish oil than it consumes. For every tonne of fish oil consumed, 1.22 tonnes is produced.