



Mt Cook Alpine Salmon Ltd  
P.O. Box 2448 Wakatipu 9349  
M: +64 21 370 080  
P: +64 3 442 3527  
F: +64 3 442 3530  
E: ceo@mtcookalpinesalmon.com  
[www.mtcookalpinesalmon.com](http://www.mtcookalpinesalmon.com)

## UPDATE OF WATER TESTING RESULTS

Author: Professor Terry Bradley

The data presented here have been collected in six-month intervals since 1993, as part of the ECAN water consent requirements for Mt Cook Alpine Salmon and previously Mt Cook Salmon.

The historical water quality graphs demonstrate that the farm at its current level of production has had no significant effect on water quality today or at anytime in the past.

We monitor water quality above the farm, at the farm site, and below the farm; the difference between the readings is the effect the farm has on water quality. The difference above and below the farm is so close to zero that it can be considered a nil effect.

One thing to keep in mind when looking at the graphs is that some of the minor differences and blips, including readings above the farm being higher than below the farm, are because the parameters are extremely low and very close to the level of detection.

To put these results in context, the water quality below the farm meets or exceeds New Zealand drinking water standards and is as good as many bottled waters that consumers actually pay for.

Even at the full production of our consents, the water quality will be within NZ drinking water quality standards.



**SUPREME WINNER**



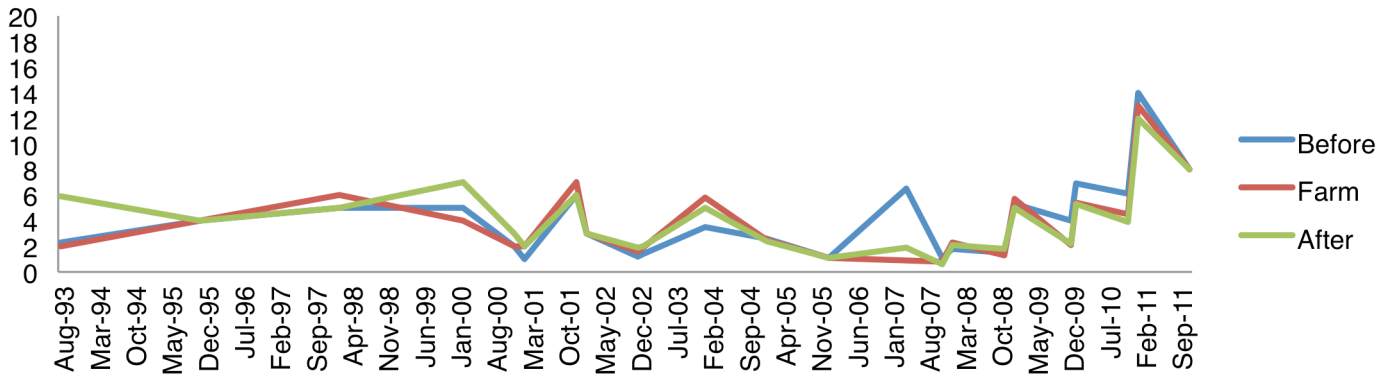
**WINNER**  
TRANSFORMATIONAL MARKETING



**WINNER**  
MAF FOOD OPERATIONS INNOVATIONS  
ASUREQUALITY FOOD SAFETY  
FOOD PRODUCT INNOVATIONS



## Suspended Solids (parts per million or milligrams per litre)



Suspended solids levels include both fine solids from feed and waste, as well as glacial flour, so the readings vary naturally. The above and below farm readings show no effect from the farm.

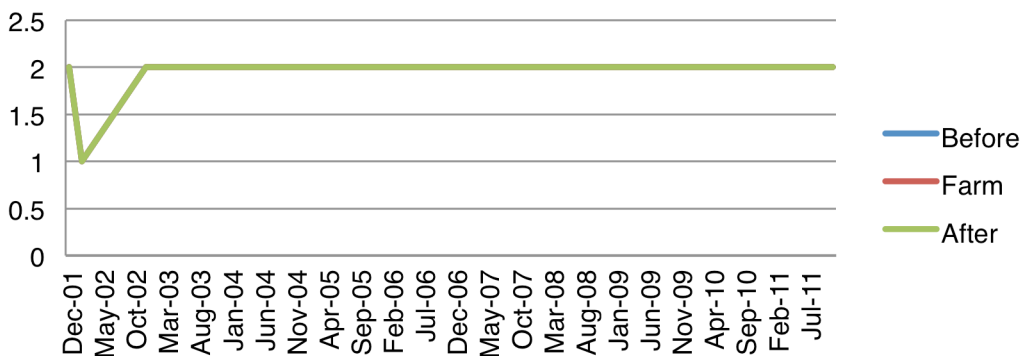
The high quality feeds produced by Skretting Australia and Ridley Feeds used by Mt. Cook Alpine Salmon typically generate 15-20% by weight of an equivalent quantity of fecal material (Pers. Com., M. Bransden, Skretting Australia), i.e., metabolism of 1 kg of feed will result in 150 – 200 grams of solid byproduct.

Each of the Tekapo and Ohau sites is permitted to release 822 kg of solids per day or a total of 300 MT per annum (365 x 0.822 MT). (See page 4 below.)

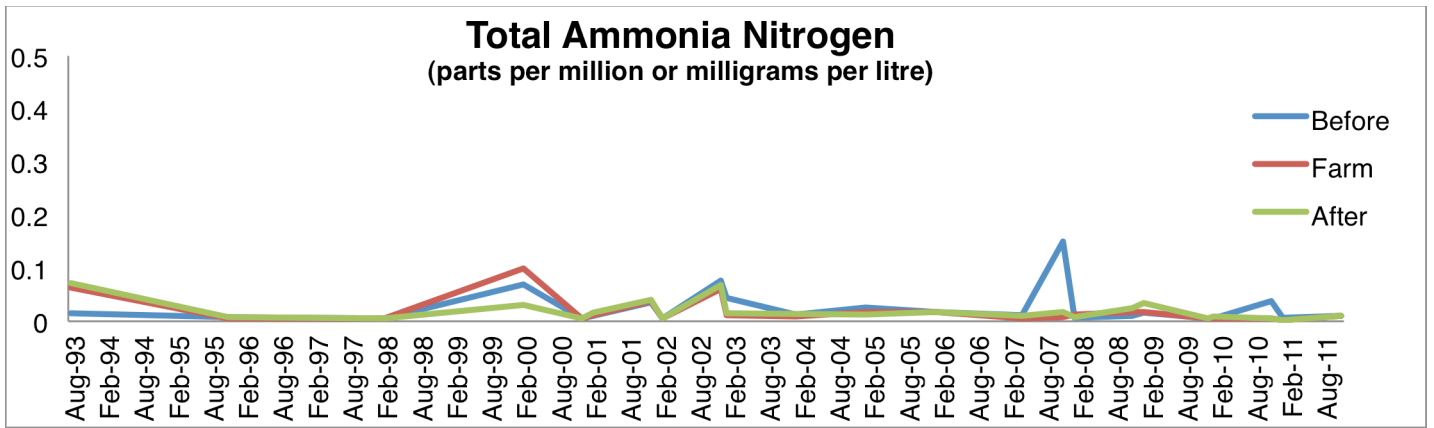
We are extremely careful about feeding of the fish to reduce any potential wastage.

The vast majority of any feed that does pass through the nets if not all of it is likely ingested by resident rainbow trout and salmon.

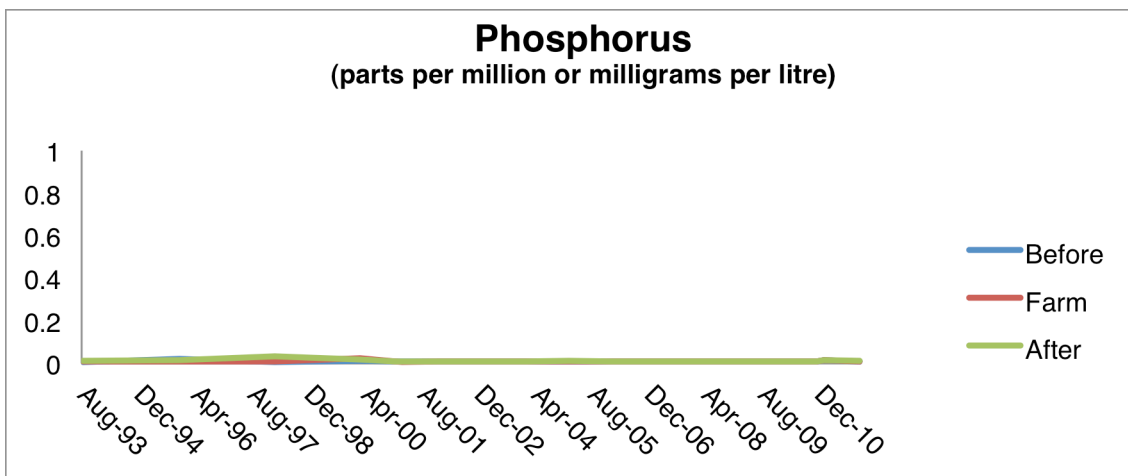
## Biological Oxygen Demand 5 day (parts per million or milligram per litre)



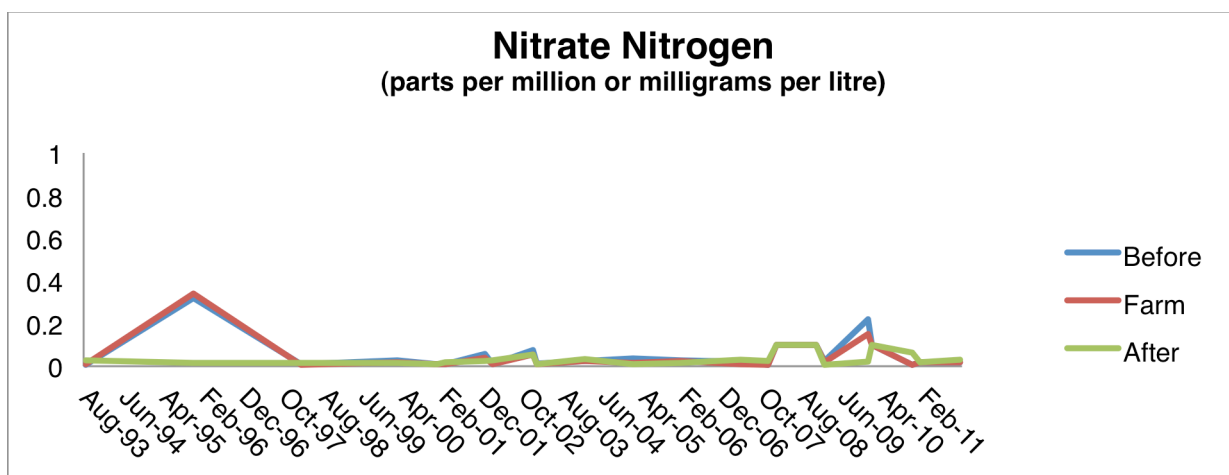
Biological Oxygen Demand illustrates the level of nutrients being used by bacteria and these readings are identical above, at and below the farm.



Total Ammonia Nitrogen is currently less than 10% of our consented level.



Total Ammonia Nitrogen and Phosphorus are byproducts of feed utilisation and both are at very low levels in the canal waters.



Nitrate Nitrogen is not produced by fish and is typically from fertilizer. The peaks we see in the graphs might indicate some runoff from top dressing.

## Organic Waste

The total amount of organic waste from either the Tekapo or Ohau Canal farms, at maximum capacity, will be 822 kg of organic solids per day. This amount of organic solids will typically occur during the peak growing months of December, January and February. The remainder of the year the organic discharge will be well below this figure.

To put this figure in context of the average water flow of a canal, it approximates two grains of sand for every tonne of water.

Average Water flow per canal (approximately)	75 Cumecs
Litres per second	75,000
Litres per day (86,400 seconds per day)	6.48 billion
Tonnes of water per day	6,480,000 tonnes
Milligrams of organic waste per tonne	1.2mg
Estimated weight per grain of sand (quartz)	0.67mg
<b>TOTAL</b>	<b>2 grains of sand per tonne of water</b>