

**GROWTH RATE AND MUSCLE COMPOSITION OF THREE
DIFFERENT GROUPS OF FARMED ATLANTIC SALMON
(*SALMO SALAR*).**

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EXTENDED ABSTRACT ONLY- DO NOT CITE

Norwegian salmon farming industry use a variety of smolt production strategies which allow them to release smolts to seawater almost the whole year around. Fish that are released at spring and autumn will display a very different growth pattern during the first year in seawater, due to different water temperature and photoperiod. This paper will focus on the different growth pattern after release to sea water, and how the growth pattern influences on chemical composition of the muscle.

Farmed Atlantic salmon from three different smolt production strategies commonly used today in the Norwegian aquaculture industry, were sampled during the sea water growth period with regular measurement of muscle composition (lipid, protein and water content) throughout the sea water production period (approximately 2 year). Group 1 were one year old, large grading smolt, transferred to sea water in April after 16 months in freshwater. Group 2 were one year old, middle grading smolt, transferred to seawater in June after 16 months in fresh water. Group 3 were under yearling, large grading smolt, transferred to seawater in september after 9 months in freshwater.

The thermal growth coefficient (TGC) was used to assess growth, because TGC incorporates both fish size and temperature effects in the growth trajectory. TGC was calculated as $(W_2^{1/3} - W_1^{1/3})(\sum T)^{-1}$, where W_2 is the final weight, W_1 is the initial weight and $\sum T$ is the sum of day degrees.

The fillet was weighted, homogenized and then analysed for chemical composition of lipid, protein, and water.

Results :

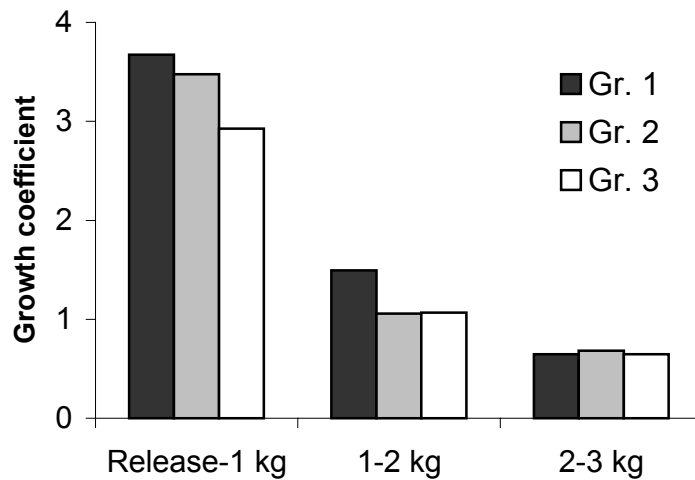


Fig. 1. Thermal growth coefficient (TGC) of the three salmon groups during the growth period in sea.

Figure 1 show the thermal growth coefficient (TGC) during the sea water growth periode. Group 1 and 2 have about the same TGC during the first growth periode in seawater. Group 3 have lower TGC during the first months in seawater, until it reaches 1 kg. From one to two kg group 1 have the highest TGC comparing to the other two groups. From 2 –3 kg the three groups have the same TGC.

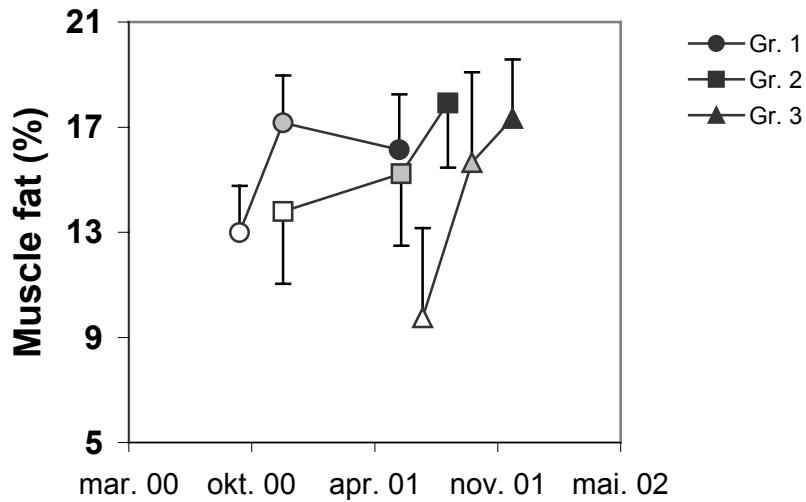


Fig. 2. Lipid content in the muscle at three different size classes indicated with different colour of the symbols. White symbols ca 1 kg, grey symbols ca 2 kg and black symbols ca 3 kg. The figure also indicates what time of the year the different salmon groups reaches the different size classes.

Muscle fat content of the different groups of salmon at different size classes are shown in figure 2. Group 3 have lower muscle fat content than the other two groups at the size of one kg. At 2 and 3 kg there where no significant different between the groups.

So even if the growth pattern and especially the fat content is different in the first period, the final fat at ca 3 kg content is similar and independent of the season.

Further results will be presented and discussed in the presentation.

