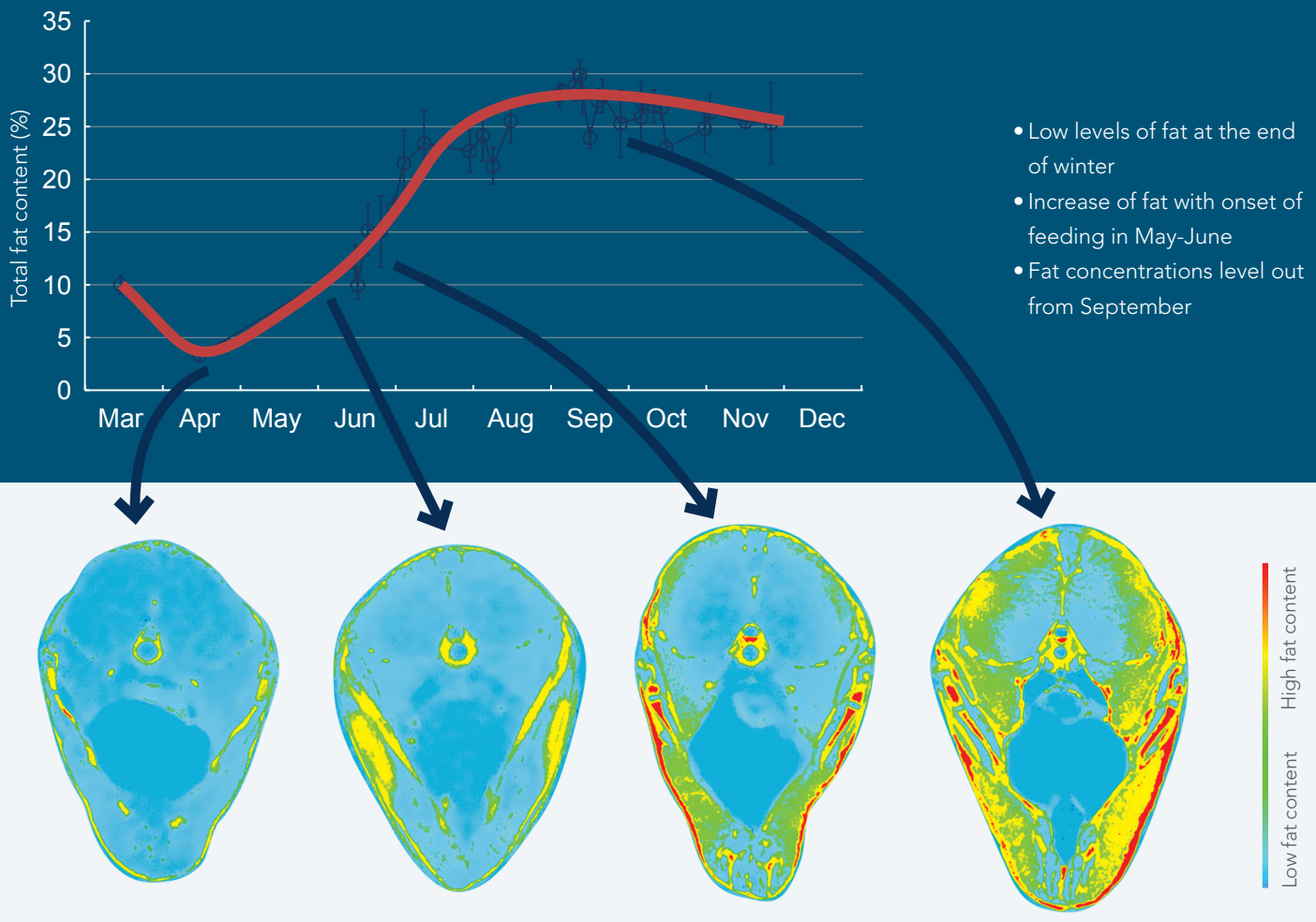
New scientific mackerel research:

"MR scanning technology documents the reason why the consumers prefers Norwegian mackerel (Scomber scombrus) caught in the "Premium Catch Period".

The fat content of mackerel is important, for the healthy EPA/DHA fatty acids and for the juiceness and taste. MR scanning technology has been used to show fat depositions into the muscle relative to fat content and seasonal changes. This is scientific documentation of why the Norwegian mackerel is preferred in the main markets.



Mackerel from Premium Catch Period has more fat deposited in the the muscle compared to more lean fish earlier in the season.

NIFES
NATIONAL INSTITUTE OF NUTRITION AND SEAFOOD RESEARCH

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UNIVERSITAS BERGENSIS

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Mackerel from Norwegian waters is known as a healthy and tasty product of the sea.

It is the fat content which gives the high level of Omega 3, EPA/DHA fatty acids, which has been widely documented to have very beneficial health effects. Fat content also is instrumental in bringing forward the taste, and most notably, the juiciness in the mackerel.

In addition to actual fat content, fat deposition into the muscle will be important in explaining the reason why consumers prefer Norwegian mackerel from the "Premium Catch Period." This fat deposition has never been documented in detail before, until now.

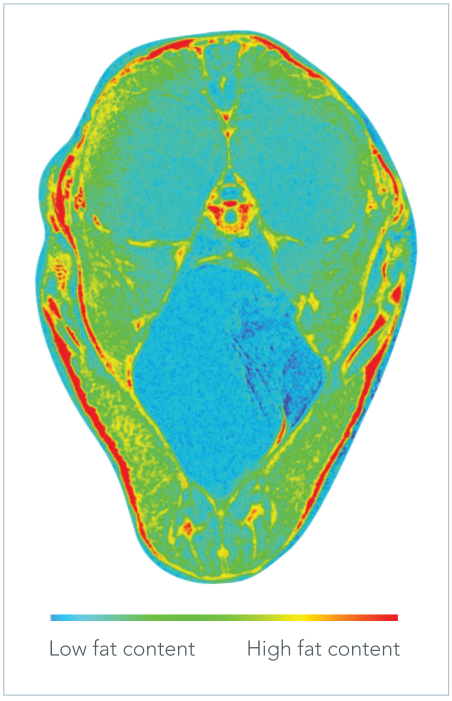
The study

The National Institute of Nutrition and Seafood Research (NIFES) is a governmental institute focusing on seafood from both nutrition and health perspectives. The Molecular Imaging Centre (MIC) at the University of Bergen is an imaging core facility for imaging methods R&D providing service to the Norwegian scientific community. In the present study, Dr. Arne Duinker (NIFES) in cooperation with Dr. Tina Pavlin (MIC) developed a method for imaging the fat distribution in cross sections of mackerel using a 7T horizontal-bore preclinical MR scanner (Pharmascan 70/16 AS, Bruker Corporation) normally used on small laboratory animals (rats, mice). The methods use T1-weighted RARE image from axial views with and without fat suppression, and subtracting these images provides the imaging of fat levels. The samples for the study were selected from commercial catches in co-operation with the Institute of Marine Research in Bergen. Monthly samples were analyzed for filet fat content, and fish representing typical fat content for the different seasons were selected for MR analysis.

Fillet consistency was analysed by Dr. Mona E. Pedersen at the NOFIMA institute.

The conclusions

The project has documented that mackerel caught in the Premium Catch Period with higher fat content has more fat deposited into the muscle. The fat content during autumn is higher in mackerel from Norwegian waters compared to other mackerel stocks. More fat deposited into the muscle of mackerel from the Premium Catch Period, may explain why the juicy Norwegian mackerel is preferred by the consumers.



The figure above shows an example of fat distribution from MR images of a cross section of a mackerel. The image is colour coded using an RGB scale with blue representing the lowest and red the highest fat concentrations. The highest concentrations of fat are found directly under the skin, and fat levels decrease towards the centre of the fish. The belly flaps have higher levels than the upper part of the fillets