Is frozen cod just as good as fresh?

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The taste of really fresh fish can only be experienced from shops for two to three months during the winter. But new handling methods can change all this and provide us with the best quality all year round. The results come from the SINTEF-coordinated research project QualiFish. Credit: Thinkstock

Is frozen cod just as good as fresh? Yes. As long as it is handled properly, new research reveals.

In Norway they say that nothing is in more of a hurry than a dead fish. This is probably true, because on average it takes three days for a fresh cod to reach most sales counters. And for both retailers and customers, a

three-day-old fresh fish is stretching it a bit. However, if the fish is frozen on board the vessel and thawed properly before it reaches the sales counter, its quality can be just as good as if it had never seen the inside of a freezer. Just as long as the fishermen and fisheries industry take note of our research results.

From fresh seasonal fish to a high-quality frozen product

SINTEF, in collaboration with the Norwegian Institute of Nutrition and Seafood Research (NIFES) and the Icelandic research institute Matís, has been looking into how fish should be handled in order to preserve taste and achieve maximum shelf-life. In other words, how to achieve the best possible quality after freezing and subsequent thawing. The project is called QualiFish.

"The background to the project is that cod fisheries are seasonal, which means that there can be big fluctuations in supply during the season," says Guro Møen Tveit, a research scientist at SINTEF. "This is why we've been looking into fish thawing options to find out if there is a real alternative to supplying live whitefish throughout the year," she says.

The research team has been carrying out tests to examine the effect of different thawing methods, and the results of these methods on the quality and shelf-life of the fish.

Three key factors

The answer requires that three key factors must be in place.

Firstly, the fish must be frozen as soon as they are hauled on board the fishing boat. In other words, they must be frozen on the vessel before

rigor mortis sets in.

The fish must then remain frozen at a stable and low temperature for the entire time leading up to thawing. There can be no interruptions in what researchers call the "cooling chain."

Thawing itself must then take place immediately before the fish are put on sale, and carried out in water under controlled conditions. If air bubbles are added to the water, the quality of the cod will be even better.

Is water temperature important?

The research team also looked into whether the temperature of the water used to thaw the fish had any effect on quality. Initially, the test fish was thawed very slowly over a period of 28 hours, starting with a water temperature of 10 degrees, and gradually lowered to 0.5 degrees. In the second test, the fish was thawed over a period of six hours in water at a constant temperature of 10 degrees. The difference in quality was so small that the researchers now recommend that fish should not be thawed for longer than 28 hours.

Good for as long as 10 days

The quality of the fish that underwent these laboratory tests continued to be good for as long as 10 days following thawing. This means that the fish were free of bacteria, and that the texture, colour, airiness and consistency of the flesh was of top quality.

"QualiFish is a major, cross-disciplinary project, and I hope that these research results may contribute towards opening people's eyes to frozen fish, which in some cases is better than fresh fish," says Moen Tveit. "After all, it often takes many days before fresh fish reaches the sales

counters," she says.

Provided by SINTEF