



# QUALIFISH - MARKEDSTILPASSET PRODUKSJON AV FERSK OG FROSSET/TINT TORSK

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SINTEF Ocean

# Agenda

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- Qualifish
- Partnere
- Resultater fra prosjektet
  - Fangsthåndtering
  - Maskinsyn
  - Tining
  - Logistikk
  - Markedet
- Oppsummering





# QualiFish

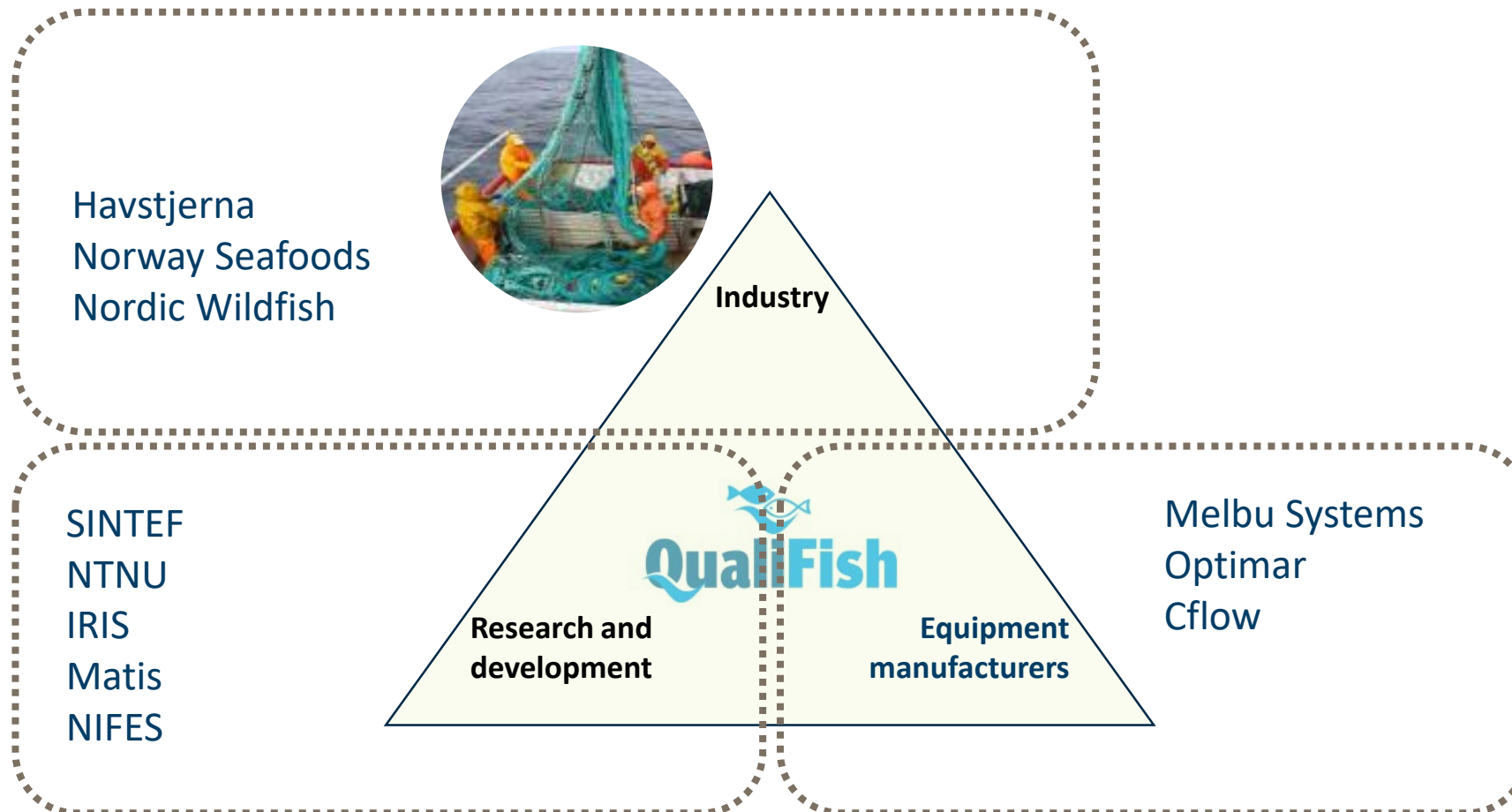
- Prosjektet skal utvikle teknologiske løsninger for nye, markedstilpassede produksjonskonsepter av fersk, fryst og tint torsk.
- Ledet av SINTEF Ocean og er finansiert av Forskningsrådet.
- Har en ramme på 22 millioner kroner over fire år, hvorav 18 millioner fra Norges forskningsråd.
- Prosjekt startet opp i 2014.
- Det er et forskerstyrt prosjekt, som baserer seg på samarbeid mellom forskere, utstyrsleverandører og næring (flåte og industri).
- Les om prosjektet og prosjektdeltakerne på [www.qualifish.no](http://www.qualifish.no) og <http://www.sintef.no>





# The different roles of the participants

Close collaboration will ensure implementation of results, products and solutions

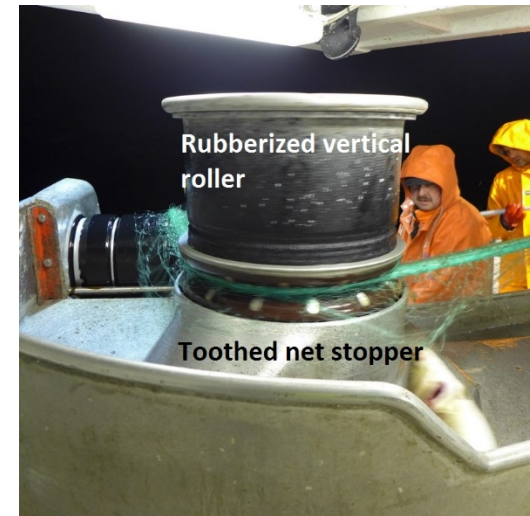


# Catch handling

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Effects of hauling procedure and net material

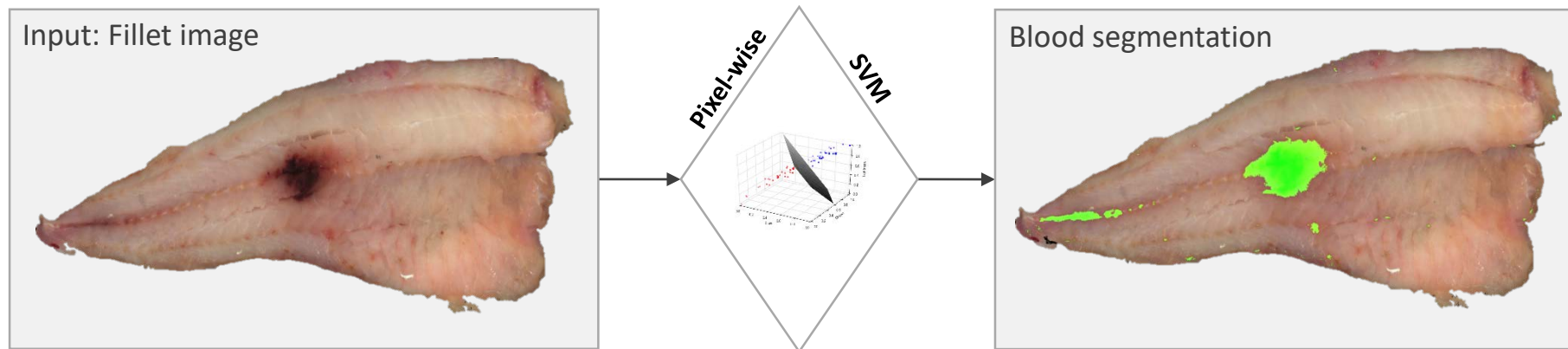
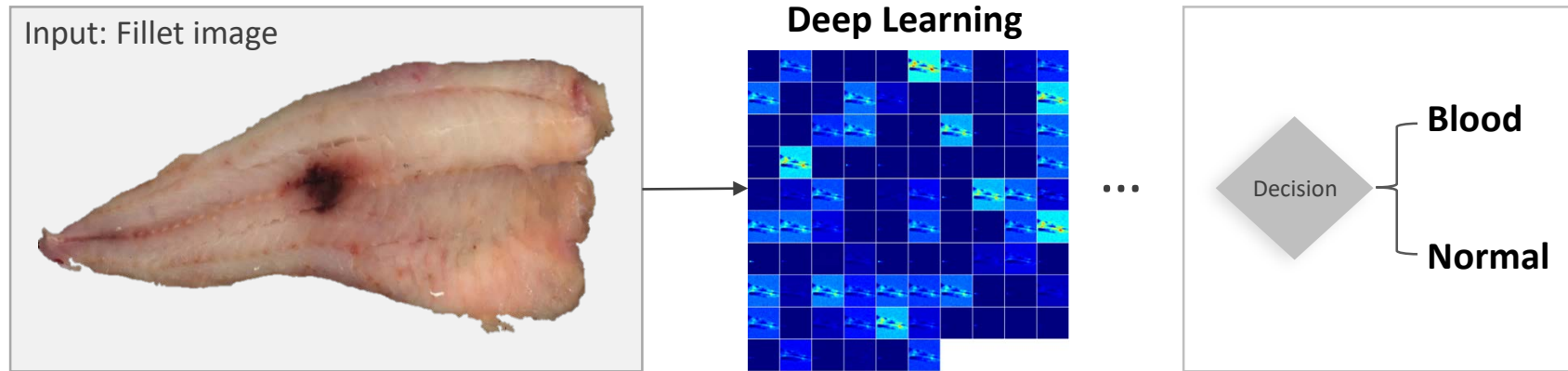
- The objective of this study was to compare the net material and hauling techniques as they are currently practiced on board commercial gillnetting vessels, and not to examine the ideal situation.
- The results:
  - Very little or no difference in the quality of round fish between the cod caught with the different net and hauling constructions.
  - Cod caught with multimono net material did exhibit a higher survival rate compared to the fish caught with the monofilament gillnets.
  - The fillets from the multimono nets gave lighter and whiter fillets compared to the monofilament nets.
  - Over all the fillets were white and of a good quality.

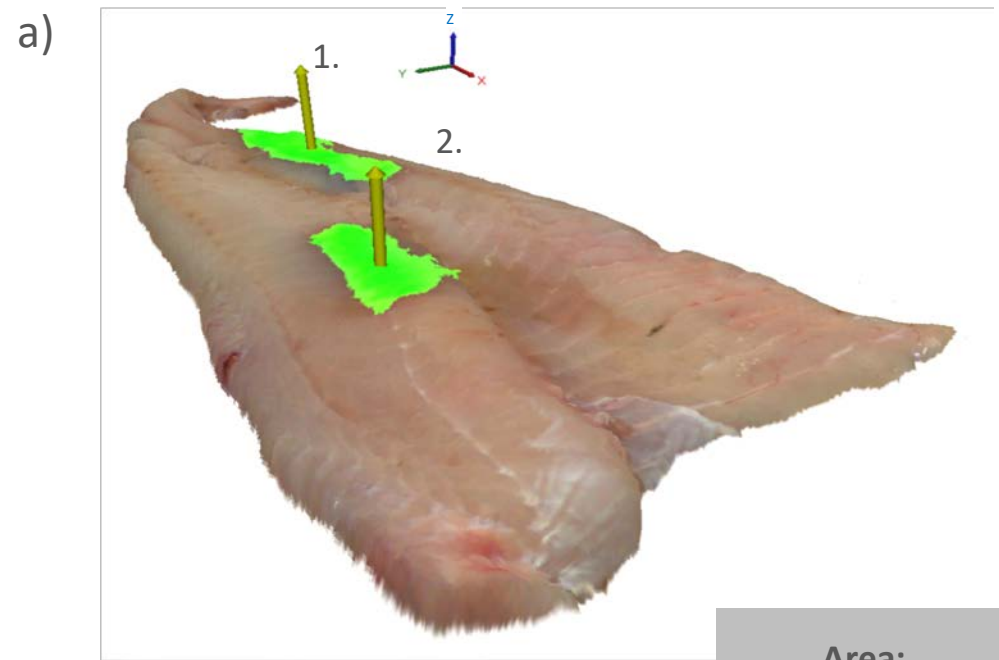


# Machine vision

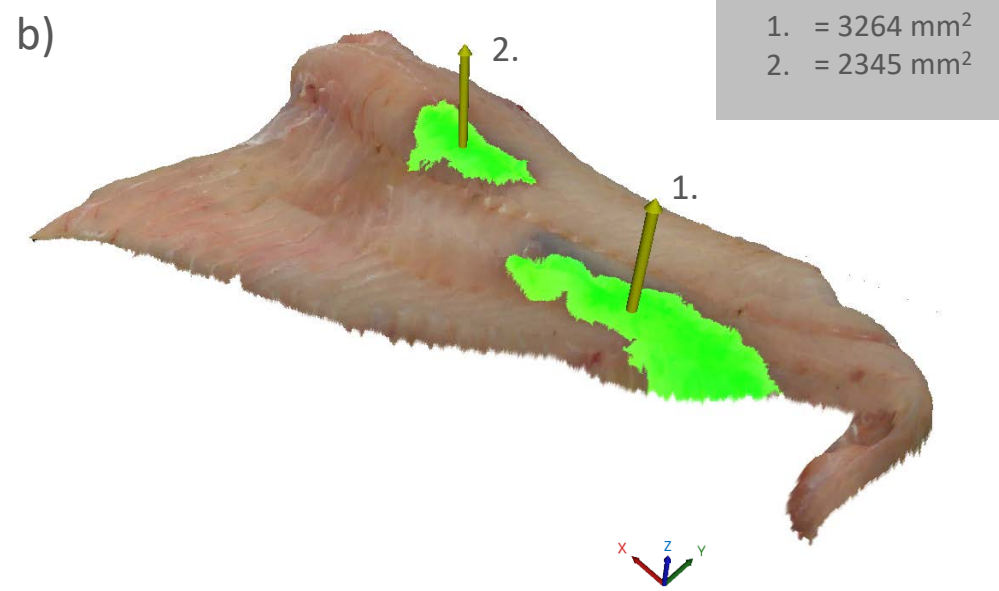


## Blood Spot Detection and Segmentation





**Area:**  
1. = 3264 mm<sup>2</sup>  
2. = 2345 mm<sup>2</sup>



# Thawing



## Thawing methods used in Norwegian fish industry

- Immersion in tanks
- Tanks with controlled water-current and temperature (size 20 – 50 tons)
  - Rectangular tanks (Long with rectangular cross section, in and out at the end)
    - Challenges: Even watercurrent and temperature, transport of fish)
  - Cylindrical tanks: High, in at the top and out at the bottom,
    - Challenges: Splitting of the blocks, division between thawed and non thawed
  - Sector dived tanks (with rotating chambers): Dived batch, first in first out, near continues thawing
    - Challenges: Control of water-current and temperature in each chamber.





# Thawing



## Thawing methods available

- Water
- Forced air or still air
- Electric
  - Vacuum
  - Microwave
  - Radio frequency



# Logistics: Production Planning based on information sharing



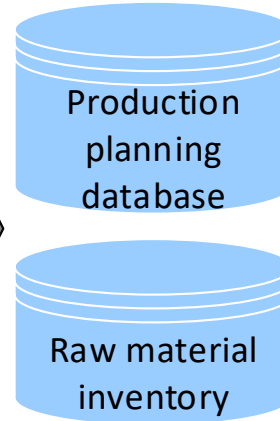
Catch information incl. Quality and size

## Data capture on fishing vessels

- Tagging of fish catches
- Recording catch information
- Recording process information (temp, quality)



Processor receives quality information linked to traceability information for each catch

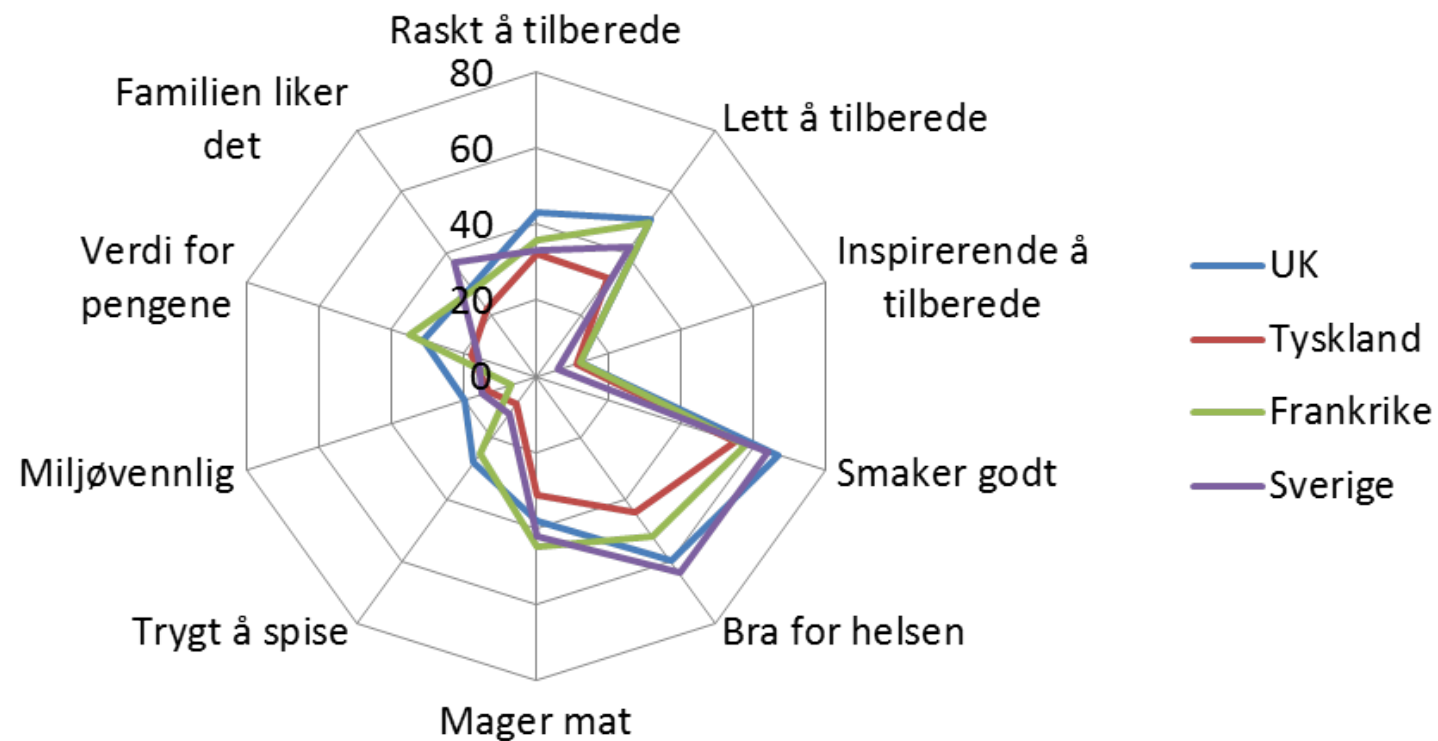


Production Planning

Using *real-time* information from:  
- the fishing vessels  
- raw material inventory

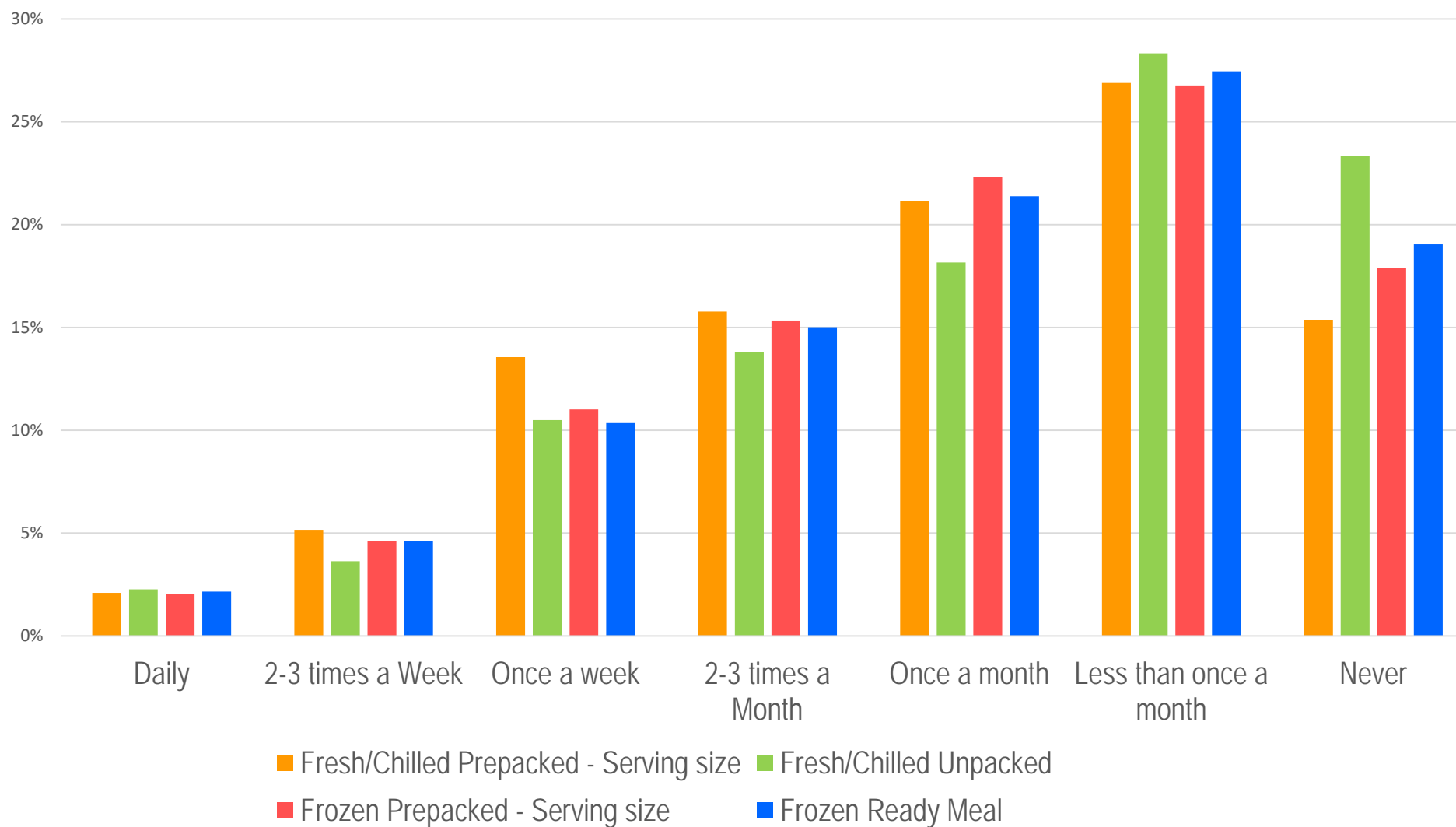


## Markedsbasert produktutvikling – kunnskap om konsumentene

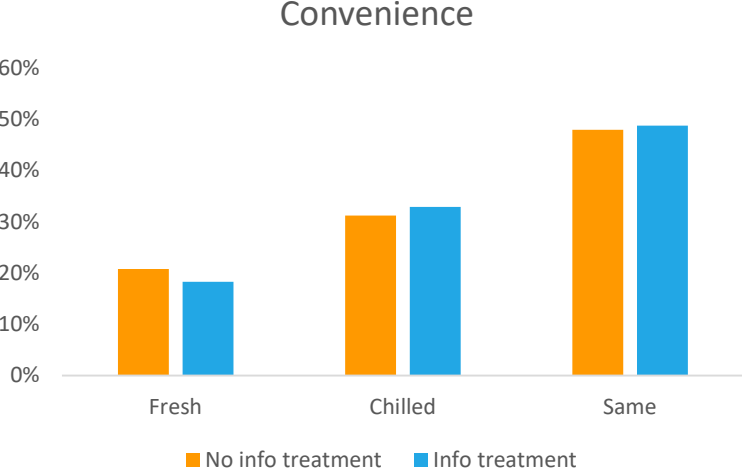
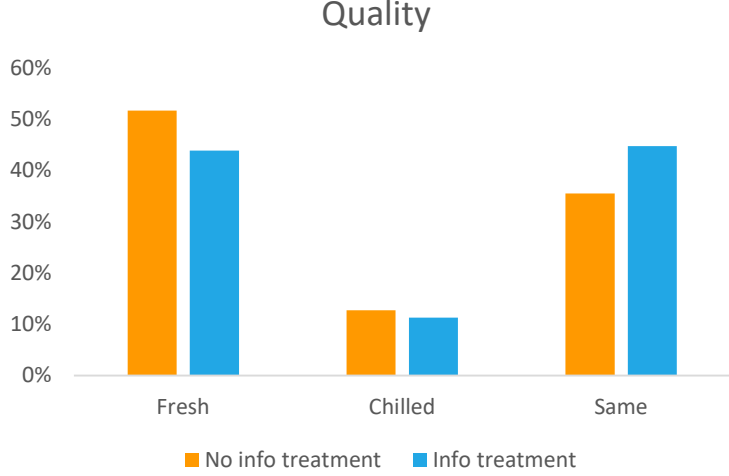
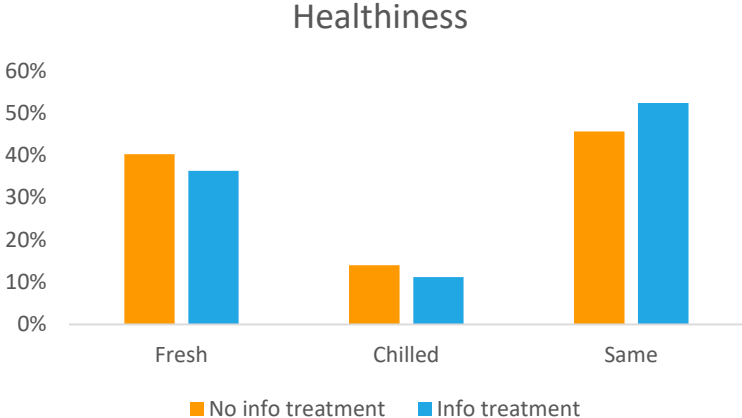
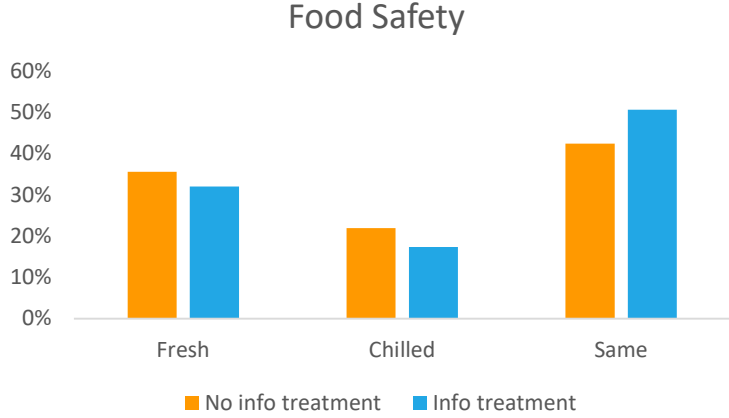




# Market : Product specific consumption at home - Cod



# Fresh v Chilled - Results



# Summary

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- Automated blood spot and gaping detection
- Thawed products are of good quality
- There are differences between quality of catch by different net materials
- Consumer information is needed for frozen/thawed products.
- Differences between Norwegian and Icelandic information management.
- [Qualifish film](#)



# Acknowledgment

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- The Norwegian Research Council (NRC) for founding of the QualiFish project (2014-2018)

Further info can be found on

- [www.qualifish.no](http://www.qualifish.no)





Technology for a better society