

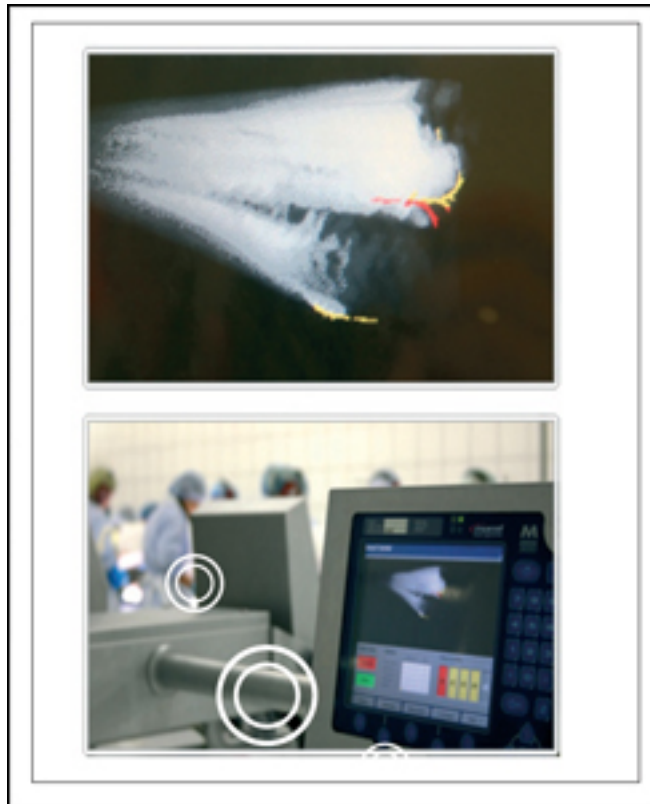
The logo for Norway Seafoods, featuring the words "NORWAY™" and "SEAFOODS" in a bold, white, sans-serif font, stacked vertically on a solid blue square background.

**NORWAY™
SEAFOODS**

APRICOT- Project «pinbone»

- Verdien av fileen og utbytte av råstoff er alfa og omega for file-industrien
- Siste års utvikling har vært slik:
 - Blokkproduksjon av fersk råstoff
 - IQF porsjoner, »sello 5» og blokk
 - Frosset råstoff kombinert med fersk
 - Kina kommer på banen som torskefisk produsent
 - Ferske loins og blokk, porsjoner
- Hva er neste trussel for fileindustrien i Norden ?
 - Chilled produkter evt fra Kina ?
 - Kostnadsnivå i Norden og spesifikt Norge for os.
 - Nære lavkostnadsland ?
- Hva kan vi gjøre i industrien ?
 - Øke utbytte.
 - Øke verdien av fileen ved å fjerne bene uten å skjære det fra, nye produktmuligheter.
 - Minske lønnskostnader, utvikle arbeidsplassene.

Automated Pinbone Removal In COd and WhiTefish (APRICOT),



...to develop smarter and more efficient processing technology

The answer to global competition is more automation

Summary

- Objectives
 - Develop a **detection unit** for 3D positioning of pinbones
 - Develop a method for on-line image-guided **pinbone cutting** (phase 1)
 - Implement a **working prototype**

- Project period
 - From 1-Jan-2012 to 31-Dec-2014. Total 3 years.

- Consortium
 - Marel (project owner, project leader)
 - Norway Seafoods
 - Faroe Origin
 - Stiftelsen SINTEF
 - SINTEF Raufoss Manufacturing

Work packages

WP no.: 1	Name: SPECIFICATION AND OVERALL CONCEPT	Start: Month 1	End: Month 4
Overall aim for Wp 1:	Establish system specifications in terms of accuracy, speed, cost and other industrial parameters.		
Deliverable 1.1	Name and overall aim Analysis of requirements	Supervision: Norway Seafoods	Total from all partners: 400 man-hours
Deliverable 1.2	Name and overall aim System specification	Supervision: Norway Seafoods	Total from all partners: 380 man-hours
WP no.: 2	Name: AUTOMATED PINBONE LOCALIZATION	Start: Month 3	End: Month 35
Overall aim for Wp 2:	Develop sensor solution and image analysis algorithms for precise 3D positioning of the complete pinbone.		
Deliverable 2.1	Name and overall aim Sensor requirements	Supervision: Stiftelsen SINTEF	Total from all partners: 1.000 man-hours
Deliverable 2.2	Name and overall aim Sensor solution	Supervision: Stiftelsen SINTEF	Total from all partners: 1.000 man-hours
Deliverable 2.3	Name and overall aim Image analysis algorithms	Supervision: Stiftelsen SINTEF	Total from all partners: 2.983 man-hours
WP no.: 3	Name: SYSTEM INTEGRATION AND PROTOTYPE DEVELOPMENT	Start: Month13	End: Month 35
Overall aim for Wp 3:	Develop a prototype system for automatic realtime removal of pinbones from white fish/cod		
Deliverable 3.1	Name and overall aim Preliminary design for a prototype system.	Supervision: Marel	Total from all partners: 5.000 man-hours
Deliverable 3.2	Name and overall aim Prototype for pinbone removal ready.	Supervision: Marel	Total from all partners: 14.010 man-hours
WP no.: 4	Name: SYSTEM TESTING	Start: Month 25	End: Month 35
Overall aim for Wp 4:	Performance evaluation of the system at relevant Nordic plants.		
Deliverable 4.1	Name and overall aim Performance report on system	Supervision: SINTEF RM	Total from all partners: 2.110 man-hours



Nordic Marine Innovation Programme - A unique Nordic cooperation in the marine sector

Project 11056: **APRICOT** (Automated Pinbone Removal In COd and WhiTefish)

January 2012-December 2014

The objective of this project is to develop and test equipment to automatically cut the pinbones out of whitefish fillets, such as cod.



A terminal at a fish processing line, showing a fish fillet X-ray image for quality inspection