Report

Process mapping in the whitefish supply chain – analysis of information and material flow

Deliverable 4.1
iProcess – WP4 Information Management

Author(s)
Maitri Thakur
Report

Process mapping in the whitefish supply chain – analysis of information and material flow

KEYWORDS:
Whitefish supply chain
Information flow
Process mapping
Event-driven process chains

VERSION
1.0

DATE
2017-08-21

AUTHOR(S)
Maitri Thakur

CLIENT(S)
Research Council of Norway

PROJECT NO.
302002492-4

CLIENT’S REF.
255596/iProcess

ABSTRACT
The objective of WP4 in iProcess project is to develop information management strategies to support decision making by the food industry making them more profitable and resource efficient. This report presents the results from process mapping conducted in the whitefish industry to analyse the flow of information and material between the fishing vessels and processors. Process maps are developed for a whitefish processor, a seagoing vessel and a coastal vessel using the Event-based Process Modelling technique. This study provides several insights that are of great relevance for the industry. The most important findings are the lack of information exchange related to quality of fish between the fishing vessels and the processors as well as the lack of raw material inventory transparency between the processing plant locations for the same company. The results from this study will be used to develop data capture and information exchange strategies for the whitefish supply chain.

PREPARED BY
Maitri Thakur

CHECKED BY
Gunnar Senneset

APPROVED BY
Marit Aursand

REPORT NO.
OC2017 A-197

ISBN
978-82-7174-318-5

CLASSIFICATION
Unrestricted

CLASSIFICATION THIS PAGE
Unrestricted
## Document history

<table>
<thead>
<tr>
<th>VERSION</th>
<th>DATE</th>
<th>VERSION DESCRIPTION</th>
</tr>
</thead>
</table>

---

<table>
<thead>
<tr>
<th>PROJECT NO.</th>
<th>REPORT NO.</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>302002492-4</td>
<td>OC2017 A-197</td>
<td>1.0</td>
</tr>
</tbody>
</table>

2 of 25
# Table of contents

1. **Introduction** .......................................................................................................................... 4  
2. **Objectives** .......................................................................................................................... 4  
3. **Case Study** .......................................................................................................................... 5  
4. **Methodology** ....................................................................................................................... 6  
5. **EPC models** ........................................................................................................................ 7  
   5.1 Flow of information and material at the processor ............................................................ 7  
   5.2 Flow of material and information at Seagoing Vessel ....................................................... 11  
   5.3 Flow of material and information at Coastal Vessel ......................................................... 14  
6. **Key Findings** ...................................................................................................................... 16  
   6.1 Processor .......................................................................................................................... 16  
   6.2 Seagoing vessel ................................................................................................................. 17  
   6.3 Coastal vessel .................................................................................................................... 17  
7. **Recommendations** ............................................................................................................. 17  
8. **Appendix** ............................................................................................................................ 19
1 Introduction

Information sharing is one of the main supply chain strategies for reducing uncertainty\(^1\). Information sharing plays a central role in supply chain collaboration and is vital for supply chain efficiency. Management of food supply chains are particularly complex due to an intrinsic focus on product quality\(^2\). Various motivation factors for supply chain information sharing are mentioned in the literature and include legislative requirements, efficient product recalls, optimization of business processes and product differentiation\(^3\).

In recent years, several studies have been conducted on the value of information sharing in supply chains and its impact on supply chain performance. Sahin and Robinson (2005) studied the impact of information sharing and physical flow coordination in a make-to-order supply chain and found that information sharing reduces costs and the main economic benefit comes from coordinated decision-making\(^4\). Information systems in marketing are often well connected to the processing information systems or at least to the product inventory. However, when it comes to displaying marketing information from the other parts of the value chain, no such system is available in the seafood industry\(^5\).

Information sharing and coordination between the buyer and vendor in the supply chain have been considered as useful strategies to remedy the so-called bullwhip effect and to improve supply chain performance. The debate is not about whether or not production information should be shared in the supply chain, but about how to share the right information at the right time in the right format by the right people under the right environment to maximize the mutual benefits of the supply chain as a whole as well as the individual business players.\(^6\)

iProcess is a Research-driven project funded by the Research Council of Norway and is a joint effort between research institutes, food processing industry, and solution providers to enable increased raw material utilization and profitability for the Norwegian food industry. The objective of WP4 in iProcess is to develop information management strategies to support decision making by the food industry making them more profitable and resource efficient. Two industry cases are selected in WP4 – the whitefish case and the Cattle hide case. This report presents the results from process mapping conducted in the whitefish industry to analyse the flow of information and material between the fishing vessels and processors.

2 Objectives

The objective of the process mapping task is to describe the flow of information and material between the fishing vessels and the processor and to identify the data management systems that are used by

---


\(^2\) Luning, P.A., Marcelis, W.J., 2006. A techno-managerial approach in food quality management research


the different actors in the supply chain and the use of this information in the production planning decisions. The outcome of the process mapping task will form the basis for developing data capture and information exchange strategies in the whitefish supply chain.

3 Case Study

The whitefish chain between the catch and processor was analysed. Whitefish supply chains are complex in nature due to high supply uncertainty and rapid quality deterioration due to handling and temperature variations. In Norway, catch volumes for whitefish including cod, saithe and haddock amounted to 721,525 tonnes in 2014. This included 473,478 tonnes of cod with a value of approximately 520 million Euros\(^7\). Most wild cod is exported as lower-value products preserved in salted, dried, and frozen forms\(^8\). In-season whitefish processors typically buy from coastal vessels that deliver fresh fish and buy from sea-going vessels that deliver frozen fish. Figure 1 shows the typical whitefish chain from catch to the processor.

![Figure 1. A typical whitefish chain from catch to processor](image)

The first step in developing the information exchange strategies for whitefish supply chain is to develop the AS-IS model for material and information flows as well as the actors involved. This was done through semi-structured interviews and plant visits.

The following actors in a whitefish chain were interviewed in this study:

1. A large whitefish processor (Processor)
2. A fishing company using deep-sea trawlers (Seagoing vessel)
3. A coastal fishing vessel using long lines and gill nets (Coastal vessel)

The processor interviewed comprises of a large sourcing network purchasing fresh fish directly from fishermen with a total of 14 sourcing stations along the coast of Northern Norway. Their customers are leading retailing chains, foodservice providers and industrial clients in Europe, USA and Asia. In season, the company buys fish from local vessels while in off-season, they buy fish from a trawler company in Norway. In off-season, fish needs to be transported between company locations to meet production goals.

The Seagoing vessel in this study is one of the largest fishing companies in Norway that delivers frozen whitefish to processors all over the world. The company uses deep-sea trawlers for catching fish.

---


The Coastal vessel interviewed uses long lines and gill nets to catch fish. The company sells both fresh and frozen whitefish to buyers in Norway either through auctions or through direct contacts.

4 Methodology

In this study, the Event-driven Process Chains (EPC) technique is used to develop an AS-IS model of the whitefish processing chain depicting the current material and information flow practices. EPC is a process modelling technique used for modelling, analysing and redesigning business processes. The language is used to describe processes at the level of their business logic and to be easy to understand and use by end users. In addition, the same EPC models can be used for the requirements definition of an information system.

An EPC consists of the following elements:

- Functions: the basic building blocks are functions. A function corresponds to an activity (task and process step), which needs to be executed.
- Events: events describe the situation before and/or after a function is executed. Functions are linked by events. An event may correspond to the post-condition of one function and act as a pre-condition of another function.
- Control flows: A control flow connects functions, process paths or logical connectors creating a sequence and interdependencies.
- Logical connectors: connectors can be used to connect activities and events. In this way, the control flow is specified and they can be used to split the control flow from to two or more flows or to combine two or more flows into one control flow. There are three types of connectors: \( \Lambda \) (and), XOR (exclusive or) and V (or).
- Organization unit: Organization unit is used to describe which organization is responsible for a specific function.
- Information: Information refers to information, material or resources connected to a function.
- Information flow: Information flows show the connection between functions and input or output data.

The various EPC elements are described in Figure 2.
Figure 2. Elements of the Event-driven Process Chains

Microsoft Visio 2013 software was used to develop the EPC models for the whitefish processor, seagoing vessel and the coastal vessel.

5 EPC models

5.1 Flow of information and material at the processor

Figure 3 shows the flow of information and material at the processor. The first step in the supply chain is the catching process which is described in Figures 5 and 6. The first function at the Processor is to “Receive fish at the processing plant”. In-season, the fish is mostly delivered by Coastal Vessels (fresh on the same day) while in off-season, the fish is delivered (mostly frozen) either by Seagoing vessels or transported from another processing plant of the same company. The Raw material department buys from the Sourcing department. Fish is graded by size and a contract note is created using the information from grading. This information is communicated to the Norwegian Fishermen’s Sales Organization that communicates the catch information to Catch Certificate SA for issuing the catch certificate (shown in Figure 4). Various data management systems are used by the Processor and their details are provided in Table 1. Table 2 lists the data elements linked to different events in the Processing stage and their relevance.
Seagoing Vessel

Coastal Vessel

Another processing plant

Fish ready to be delivered

Receive fish at the processing plant

Fish arrives at processing plant

Grading by size and weight

Ready for quality inspection

Quality inspection

Contract note created

Quality assignment

Quality 1 assigned

Quality 2 assigned

Quality 3 assigned

Move fish to storage

Raw Material Department

Innova system - Marel

Contract note (using Maritech Sluttsedel)

Norwegian Fishermen’s Sales Org.

Production department
Develop production plan

Innova System – Marel

Production plan developed

Decide whether to sell or use in production

Facebook group for plant manager and two production managers

Fish enters storage

Sales Prognosis Excel

Fish enters filleting process

Central Planner

XOR

Fish enters other processes

Central Planner

V

Fish goes back to Raw material department

Central Excel Dashboard

Update Dashboard

Central Dashboard updated

Pack finished products

Innova System – Marel

Packed products ready for palleting and storage

Maritech system

Pallets into storage

Plant Manager

Pallets ready for shipment to customers

Plant Manager

Sell fish

Sorting

Fish ready to be sold

Raw material department

Sales Department

Fish enters storage

Central Planner

Sales Department

Figure 3. Information and material flow at the processor

This figure is valid for seagoing vessels and coastal vessels with the only exception that when buying from coastal vessels in season, heading and gutting is done by the processor as the coastal vessels deliver whole fish.
Figure 4. Information exchange between the Norwegian Sales Organization and Catch Certificate

Table 1. Data management systems in use

<table>
<thead>
<tr>
<th>Data management system</th>
<th>Application type</th>
<th>Purpose of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marel Innova¹¹</td>
<td>Food processing software</td>
<td>Production control. All machines in the production line are connected to Marel system.</td>
</tr>
<tr>
<td>Maritech¹²</td>
<td>ERP system</td>
<td>Used for finished products inventory management</td>
</tr>
<tr>
<td>Central Dashboard</td>
<td>Excel</td>
<td>Managed by the Controller, it contains plans for all processing plants including raw material volumes (monthly and daily levels), yield by species, salary/kg/day, utilization of cutting line (kg/hour). Weekly reports are also generated through this dashboard. How much fish is sent into production is recorded in the dashboard</td>
</tr>
<tr>
<td>Sales Prognosis</td>
<td>Excel</td>
<td>Used by the sales department, central planner and the plant managers to develop the production plans</td>
</tr>
<tr>
<td>Facebook group</td>
<td>Closed group for internal plant level communication</td>
<td>Used by plant manager and two production managers to communicate production plans and any deviations</td>
</tr>
</tbody>
</table>

¹¹ [http://marel.com/innova](http://marel.com/innova)
¹² [http://www.maritech.no](http://www.maritech.no)
Table 2. Data elements linked to key events

<table>
<thead>
<tr>
<th>Event</th>
<th>Linked data elements</th>
<th>System used</th>
<th>Relevance of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract note created</td>
<td>Vessel ID, Vessel name, Fishing company name, Catch date, Catch area, Catch method, Landing date, Catch description (species, fresh/frozen, weight, size), Price</td>
<td>Norwegian Fishermen’s Sales Organization</td>
<td>Used to create catch certificate and to pay the fishermen</td>
</tr>
<tr>
<td>Quality assigned</td>
<td>Batch ID, Date, Quality grade</td>
<td>Marel Innova</td>
<td>Used in production planning decisions</td>
</tr>
<tr>
<td>Central dashboard updated</td>
<td>Production data</td>
<td>Excel based central dashboard</td>
<td>Used for monitoring production</td>
</tr>
<tr>
<td>Packed products ready for palleting and storage</td>
<td>GTIN, Species, Catch area, Lot number, Size, Treatment, Quality, Preservation (fresh/frozen), Packing date, Best before date, Net weight, Box number, Pallet number, Catch method</td>
<td>Maritech</td>
<td>Used for communication to the buyers of finished products</td>
</tr>
<tr>
<td>Pallets ready for shipment to customers</td>
<td>SSCC, Pallet number, Order number, Species, Treatment, Size, Number of boxes, Weight per box</td>
<td>Maritech</td>
<td>Used for communication to the buyers of finished products and billing</td>
</tr>
</tbody>
</table>

5.2 Flow of material and information at Seagoing Vessel

Figure 5 shows the flow of information and material at the Seagoing vessel. The Seagoing vessels deliver frozen fish to land (processors/exporters). The vessel interviewed for this study uses the trawling method for catching whitefish. The company uses the eCatch13 system on-board the fishing vessel for recording catch information and communicating it to the Norwegian and EU authorities (for export products). The eCatch system is accessible by the Sales department and the office in Norway. The company has direct contacts with buyers or can sell through auctions. Daily production reports are used to manage the on-board operations. The company also sells to buyers in Poland and China. Transportation to Poland takes 3-5 days while to China it takes 5-6 weeks.

13 https://ecatch.no/
Seagoing Vessel

Fish is caught

Pumping into the factory

Fish ready to be processed

Electrical stunning and gill removal

Fish sorted by size and species

Deheading and gutting

Fish ready to be graded

Grading by size

Fish ready to be frozen

Freezing using plate freezer

Fish blocks ready for storage

Fish enters freezer storage

1

Directorate of Fisheries

eCatch system

Catch information

On-board Production Department

Quality Manager

Temperature data

Excel file

Directorate of Fisheries

On-board Production Department

Quality Manager

Temperature data

Excel file
Figure 5. Information and material flow at the seagoing vessel

Table 3. Data management systems in use

<table>
<thead>
<tr>
<th>Data management system</th>
<th>Application type</th>
<th>Purpose of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>eCatch</td>
<td>Electronic logbook, electronic reporting system and information system</td>
<td>Record catch information and communication to the Norwegian authorities (Norwegian Fishermen’s Sales Organization)</td>
</tr>
<tr>
<td>Classification</td>
<td>Excel</td>
<td>Excel form used for allocation of catch into species and quality classes</td>
</tr>
</tbody>
</table>

Table 4. Data elements linked to key events

<table>
<thead>
<tr>
<th>Event</th>
<th>Linked data elements</th>
<th>System used</th>
<th>Relevance of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catch</td>
<td>Vessel name, Trawling time, Species, Total weight, Catch area, Product condition, Trawling position (start and end)</td>
<td>eCatch</td>
<td>This information is provided to the Directorate of Fisheries. This information is also communicated to the Sales department on land.</td>
</tr>
<tr>
<td>Grading by size</td>
<td>Catch date, Percentage of catch in different grades</td>
<td>Excel</td>
<td>Used in the on-board production planning</td>
</tr>
<tr>
<td>Sorting by species</td>
<td>Catch date, Percentage of catch in different species</td>
<td>Excel</td>
<td>Used in production planning decisions</td>
</tr>
<tr>
<td>Freezing</td>
<td>Freezing duration, Temperature in Tank, Temperature of fish</td>
<td>Manual</td>
<td>Quality control</td>
</tr>
</tbody>
</table>
5.3 Flow of material and information at Coastal Vessel

Figure 6 shows the flow of information and material at the Coastal vessel. The Coastal vessels operate in season and deliver fresh fish to the land (processors/exporters). Some Coastal vessels have small on-board freezers that can be used to freeze fish before delivering it on land. The company interviewed in this study catches fish using long lines and gill nets and has an on-board freezer. Similar to the Seagoing vessel, the company uses the eCatch system on-board the fishing vessel for recording catch information and communicating it to the Norwegian and EU authorities (for export products). Fish is either stored fresh on-board for a couple of days if it is caught close to the buyers. Otherwise the fish is stored frozen for several weeks before delivering to the buyers. The company has direct contacts with buyers or can sell through auctions. Fresh fish can be sold directly to the buyers or in an auction while frozen fish is sold only by auction through the Norwegian Fishermen’s Sales Organization. Fish is sorted into different sizes and species and are priced accordingly on landing.
**Figure 6. Information and material flow at the Coastal vessel**

- **Coastal Vessel**
  - Fish is caught
  - Sorting by weight
  - Fish sorted by weight
    - Bleeding, gutting, washing
    - Fish ready to be frozen
    - Fish frozen into blocks
    - Fish ready to be iced for fresh delivery
    - Fresh fish iced in tubs
    - Is it fresh or frozen?
      - Fresh
      - Frozen
        - Sell directly to buyer
        - Fish is sold and landed
          - Grading by size
            - Contract note created for payment
          - Contract note created for payment
        - Contract note
        - Contract note
        - Coastal Vessel
          - Some indication of quality, total weight and species
          - Buyer (Processor/Exporter)
            - Fish is sold and landed
              - Grading by size
                - Contract note created for payment
          - Contract note
      - Sell through auction system
          - Fish is sold and landed
            - Grading by size
              - Contract note created for payment
          - Contract note
        - Coastal Vessel
          - Norwegian Fishermen’s Sales Org.
            - eCatch system
              - Catch information
Table 5. Data management systems in use

<table>
<thead>
<tr>
<th>Data management system</th>
<th>Application type</th>
<th>Purpose of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>eCatch</td>
<td>Electronic logbook, electronic reporting system and information system</td>
<td>Record catch information and communication to the Norwegian authorities (Norwegian Fishermen’s Sales Organization)</td>
</tr>
</tbody>
</table>

Table 6. Data elements linked to different events

<table>
<thead>
<tr>
<th>Event</th>
<th>Linked data elements</th>
<th>System used</th>
<th>Relevance of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish is caught</td>
<td>Catch date, catch method, catch area, species, weight</td>
<td>eCatch</td>
<td>Used for communicating to the authorities and creating catch certificate</td>
</tr>
<tr>
<td>Fish sorted by weight</td>
<td>Weight group, weight, catch date</td>
<td>Manual</td>
<td>Used for communicating to the authorities</td>
</tr>
<tr>
<td>Contract note created (frozen and fresh)</td>
<td>Vessel ID, Vessel name, Fishing company name, Catch date, Catch area, Catch method, Landing date, Catch description (species, fresh/frozen, weight, size), Price</td>
<td>Norwegian Fishermen’s Sales Organization</td>
<td>Used to create catch certificate and to pay the fisherman</td>
</tr>
</tbody>
</table>

6 Key Findings

6.1 Processor

As described in the previous sections, there are several data management systems in use by the processor. The Marel Innova system is used for production control and all machines in the production line are connected to the Marel system. An Excel based sales prognosis is used by the sales department and the central planner to develop production plans. The Central dashboard is used to record the production data from the time the raw material enters production. Maritech is the ERP system used for the finished goods inventory and customer billing. The following are the key findings related to information and material flow at the processor:

1. The Marel Innova and Maritech systems are not integrated.
2. Raw material inventory is not registered in a centralized system but only the Raw Material Department has an overview of how much is available at a given location. Each plant needs to store at least their three days requirement of the raw material. During off-season, raw material often needs to be transported between plant locations to keep the production running.
3. The grading information is sometimes used in production planning to determine which filleting machine to use.
4. The processor does not receive any quality information from the fishing vessel but only get an indication of total weight and estimated quality.
5. The decision of whether to sell the fish or put it in production is taken by the Central Planner based on the quality grade.
6.2 Seagoing vessel

eCatch is the primary system that is used on-board to record the catch data and communicate it to the Directorate of Fisheries. The following are the key findings related to information and material flow:

1. Catch date is the unique ID and there is no mixing of different catches on board.
2. The crew gets a quality report for each catch.
3. The sales office has access to the on-board production data and the eCatch system.
4. Upon landing, the quality report and pictures of fish are sent to the customers.
5. The company does not get a higher price for premium quality.
6. After landing, delays in transportation can occur and poor temperature management can affect the quality of fish.
7. Buyers in UK (haddock) are interested in additional product information such as exact catch location and handling practices.

6.3 Coastal vessel

Like the Seagoing vessel, eCatch is the primary system that is used on-board to record the catch data and communicate it to the authorities. The following are the key findings related to information and material flow:

1. Fish is not graded for quality on-board. However, the company is working continuously to have good handling practices on-board. Quality also depends on where the fish is caught. Most buyers can follow the vessel and see where it is and where the vessel has been fishing to know whether the quality is good or not based on previous experience.
2. Weight of individual fish are not recorded on-board.
3. Currently, most buyers do not ask for additional catch or quality information but there is an increasing interest in knowing about the catch, handling methods and environmental factors such as fuel use and handling of by-catch.

7 Recommendations

The process mapping in the whitefish supply chain provides a number of insights that are of great relevance for the industry. The most important finding is the lack of information exchange between the fishing vessels and the processors. In case of Seagoing vessels, the company interviewed in this study sent the quality report and pictures of fish to the customers. It would be relevant to install a control station on-board with a camera to take pictures as the fish goes through the production line and in combination with the temperature of fish during handling and storage can generate a quality report that can be used internally by the company for production optimization and for communication to the customers. The quality report can be linked to the Catch date which is used as the Unique ID and this information can be useful for tracking the quality linked to catch area, season and catch method.

From the processors perspective, if they have the quality information in advance, it is easier to determine what proportion of the catch can be used for fillet production which is their main business and what proportion should go for other products or should be sold without further processing. For the processor interviewed in this project, the raw material inventory status for different plant locations is not available, making coordination between locations very time consuming and inefficient. A real-
time raw material inventory system could be developed by tagging the tubs used to store the raw material which in turn would provide a transparent system for all locations and allow for efficient coordination. The information about quantity, grade and quality could also be linked to each tub.
A Appendix

Example of a Contract Note (Sluttsedel)
### Grading Overview

**Date:** 22.02.2017 - 23.02.2017  
**Product:** Grading Tank 1/114 (read)  
**Grade:** Eحكم   

<table>
<thead>
<tr>
<th>Product</th>
<th>Pieces</th>
<th>Weight (kg)</th>
<th>Mean (kg)</th>
<th>Min Value %</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank sized with forks 0-2.5 kg</td>
<td>11</td>
<td>1.11</td>
<td>1.11</td>
<td>0.34</td>
<td>0.25</td>
</tr>
<tr>
<td>Tank sized with forks 2.5-4 kg</td>
<td>6</td>
<td>0.79</td>
<td>0.79</td>
<td>0.28</td>
<td>0.22</td>
</tr>
<tr>
<td>Tank sized with forks 6.0+ kg</td>
<td>6</td>
<td>0.69</td>
<td>0.69</td>
<td>0.21</td>
<td>0.19</td>
</tr>
</tbody>
</table>

**1. Eحكم**  

**PCS per minute:** 10.42  
**kg per hour:** 590.98  
**Times:** 01:37:13

---

**Example of Grading Report from Marel**
Box label

Pallet Label
Example: Tracking of Contract Note

Sporing seddelstatus

<table>
<thead>
<tr>
<th>SEDDEL</th>
<th>TIDSPUNKT</th>
<th>TEKST</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-10084384</td>
<td>27.03.2017 12:58</td>
<td>Seddel registrert i Råfisklagets seddelsystem (fangstdato 27-MAR-17 NOR) Godkjent</td>
</tr>
<tr>
<td></td>
<td>27.03.2017 13:02</td>
<td>Sendt til CatchCertificate</td>
</tr>
</tbody>
</table>

Oversikten over viser seddel dersom den er innsendt av kjøper og registrert hos Råfisklaget.

Før seddel kan sendes til Catchcertificate må den frakomme som:
Seddel registrert i Råfisklagets seddelsystem og med status Godkjent.
Fangstsertifikat kan kun utstedes på basis av sedler fra og med 2010 på norske fartøy.
Screenshot of the eCatch system
### Meldingsstatus

- Fangstmelding for 03.04.2017
- Fangstmelding for 02.04.2017
- Siste melding sendt (DCA)

### Fangst / produksjon på hal nr 2

<table>
<thead>
<tr>
<th>FISKESLAG</th>
<th>RV (kg)</th>
<th>%</th>
<th>PV (kg)</th>
<th>RV (kg) PÅ TUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLEKKSTBIT</td>
<td>74</td>
<td>1.1</td>
<td>45</td>
<td>74</td>
</tr>
<tr>
<td>HYSE NØA</td>
<td>3 991</td>
<td>60.8</td>
<td>2 851</td>
<td>8 044</td>
</tr>
<tr>
<td>SEI</td>
<td>124</td>
<td>1.9</td>
<td>92</td>
<td>248</td>
</tr>
<tr>
<td>TORSK NØA</td>
<td>2 200</td>
<td>33.5</td>
<td>1 467</td>
<td>5 508</td>
</tr>
<tr>
<td>UER</td>
<td>180</td>
<td>2.7</td>
<td>180</td>
<td>900</td>
</tr>
</tbody>
</table>

**SUM:** | 6 569 | 100.0 | 4 635 | 14 774