Safety conditions on smaller vessels in the Norwegian fishing fleet

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• Former Senior Scientist
Data collection - different sources

- Accident statistics for the Norwegian fishing fleet - 1990 - 2018 - SINTEF Ocean
- Accident reports from Accident Investigation Board Norway (AIBN) – Marine department
- Various data obtained from the Fisherman's own portal: https://www.yrkesfisker.no/
- Norwegian Maritime Authority (NMA): Frequently asked questions about the control of smaller fishing vessels, Loa <15 meters
- Fishermen’s Organization: Safety Management and Certificate Requirements on smaller fishing vessels
- Contact with Approved Companies regarding activity the costs of vessel inspection
- Contact with Vessel Owners regarding the new safety control and total costs
- Various media reviews about the New Control System and users' reactions
Background – status for fatal accidents

• The smaller Coastal fishing fleets are the most risky with respect to fatal accidents also in Norway

• Accidents data over long periods like a 29-year period from Jan. 1990 – December 2018, of total 323 losses 218 or 67 % of all fatal accidents in the Norwegian fishing fleet are related to small vessels, Loa < 15 meter.

• Of these 218 fatal losses, 62 % were fishers on so-called one-man boats. That gives 135 losses or 42 % of all fatal accidents in the Norwegian fishing fleet happens on board one-man boats.
Main Causes of fatal accidents on smaller fishing vessels.

Length groups Loa < 11 meter and Loa = 11 – 14,99 meter.

29-year period January 1990 – December 2018

- Vessel casualty incl. capsizing: 75 + 15 = 90 (79%) of total 114 lives lost
- Overboard accidents – drowning: 61 + 7 = 68 (71%) of total 96 losses
- Port accidents – drowning: 19 + 13 = 32 (52%) of total 62 losses
- Stroke/crush in fishing operation: 9 + 8 = 17 (53%) of total 32 losses
- Statistics of fatal accidents for the smaller fishing fleet are also presented for 5-year periods, see next page
Development of Fatal accidents in small Norwegian fleet - 1990 - 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Small Coastal, 11 - 14.99 m</th>
<th>Coastal Sjark, 6.0 - 10.99 m</th>
<th>Open Boat, Loa &lt; 6.0 meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-94</td>
<td>11</td>
<td>51</td>
<td>20</td>
</tr>
<tr>
<td>1995-99</td>
<td>14</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>2000-04</td>
<td>2</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2005-09</td>
<td>6</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>2010-14</td>
<td>6</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>2015-18</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
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</table>
Accident Investigating Board Norway (aibn)

• The marine department at AIBN was established in 2008.

• The sole objective of investigating an accident is to determine its circumstances and causes, with the aim of improving the safety of life at sea and the avoidance of accidents in the future, see: https://www.aibn.no/Marine

• While trawling off the coast of Lindesnes 12. Feb. 2014, the 15 m trawler "Carina", two men, capsized and sunk: https://www.aibn.no/Marine/Published-reports/2015-02

• Report on marine acc. - the fishing boat "Stortinn Jr"s sinking SE of Røst 6 April 2015; https://www.aibn.no/Marine/Published-reports/2016-09

• Report on marine accident with fishing vessel "Knut Gynther" LF4197, capsizing in Vevelstad, Nordland, 22. Feb. 2014: https://www.aibn.no/Marine/Published-reports/2017-09
"Stortinn Jr." sunk April 6 - 2015

- The fishing boat "Stortinn Jr." capsized and sank SE of Røst. It was two persons on board. One person was rescued (18 year) and the other person (69 year) died.

- Before noon the fisherman finished his fishing for the day, and began sailing with 4-5 knots speed towards Roest. Together with a colleague he had filled the cargo hold with fish, and in addition he had some fish stored on the outside deck.

- The Accident Investigation Board of Norway's (AIBN) calculations show that the total load on board meant that the boat's stability basically was marginal on the day of the accident. Photo of the wreck: 21-04-2015
Fishing vessel «Kristine» raised from bottom June 2018 - two year after shipwreck – and lost fishers remains found next to the wreck
Background for introduction of full control on smaller fishing vessels

- Various Accident Investigations have examined about 100 tragic accidents involving smaller fishing vessels from 1978 and to today, June 2018.

- Already in 1980, the Commission suggested that mandatory vessel control was needed also for smaller fishing boats, Loa < 35 ft (Loa < 10.67 meter).

- The Norwegian model was investigated and negotiated in 2012 and 2013 between Norwegian Maritime Authority and fishermen's organizations.

- SINTEF also conducted a report on Stability and Stability Margins on Small Fishing Vessels, see reference / 3 / 2013. One conclusion was that stability control of smaller vessels was absolutely necessary.
New control regime aboard smaller vessel in the Norwegian fishing fleet < 15 meter

- Because of the high accident rates in the smaller fleet, Norwegian Marine Authorities (NMA) decided to introduce full safety standard and control also in these fleet group, Loa = 8,0 to 14,99 meter.
- This was effective from 1. January 2014, starting with the newest vessels. This was done in agreement with the fishermens organizations, Norges Fiskarlag og Norges Kystfiskarlag.
- Information about the new control regime, see: www.yrkesfisker.no
- The plan for phasing in vessels, see the table on the next page:
Vessel Instruction for my vessel?

- Vessels from 10.67 to 15 meters have been required for vessel instruction since 2001.
- The table shows when fishing vessels from 8 to 10.67 meters must have completed control.
- Operation area: Kystfiske = Coastal Fishing. Bankfiske = Bank fishing.
- Vessel built in different periods, see table. Green color = Not applied!

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Bankfiske</td>
<td>Før fart</td>
<td>01.01.2016</td>
<td>01.01.2016</td>
<td>01.01.2016</td>
<td>01.01.2016</td>
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<tr>
<td>Kystfiske</td>
<td>Før fart</td>
<td>01.01.2016</td>
<td>01.01.2017</td>
<td>01.01.2019</td>
<td>01.01.2019</td>
<td>01.01.2019</td>
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<tr>
<td>Fjordfiske</td>
<td>Før fart</td>
<td>01.01.2016</td>
<td>01.01.2017</td>
<td>01.01.2019</td>
<td>01.01.2020</td>
<td>01.01.2021</td>
</tr>
</tbody>
</table>

NMA (2017). Documents included in the control scheme for fishing vessels below 15 meters:
Vessel instruction – checkpoints

- Control of hull, superstructure, machinery and propeller
- Control of freeing port, closure of hatches and doors
- Stability control for different fisheries, loading conditions and operation area, like coastal and bank fishing (ising)
- Control and approval of electrical installations
- Control of radio systems and electronic equipment
- Control of fire alarm and fire fighting systems
Vessel Instruction and Stability poster - New boat
Stability on smaller vessels – NMA

Focus on capsizing - Published: 27/07/2016

- Capsizing as a result of failing stability has led to several deaths in the fishing fleet. In order to focus on the problem, and hopefully contribute to reduce the number of accidents, the Norwegian Maritime Authority has developed a brochure, "Stability guide for smaller vessels". The brochure is only available in Norwegian.

- The brochure shows, in an easy and simple way, the different, important aspects that has a big impact on the stability of a vessel. It also gives a short introduction on how to make stability calculations, what kind of information they contain, and how to use the calculations on a daily basis.

- The brochure was distributed to all owners of fishing vessels under 15 meters.

- The brochure is available for download at the Yrkesfisker.no website.
## Some cost examples for safety control

*Cost in USD from NOK given by a Control company*

<table>
<thead>
<tr>
<th>A No</th>
<th>Ship technical analyzes and various controls</th>
<th>Basic price NOK</th>
<th>Basic price USD</th>
<th>SJ1 &lt; 10,67 m</th>
<th>SJ2 &lt; 10,67 m</th>
<th>SJ3</th>
<th>SJ1 + SJ2</th>
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</thead>
<tbody>
<tr>
<td>A 01</td>
<td>Vessel Control of Approved Inspection Company *</td>
<td>NOK</td>
<td>USD</td>
<td>Basic 01</td>
<td>Basic 02</td>
<td>Extra 03</td>
<td></td>
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<tr>
<td>A 02</td>
<td>Crane test on shark / small coast &lt;11 meters</td>
<td>8600</td>
<td>1048,8</td>
<td>1</td>
<td>1048,8</td>
<td>0</td>
<td>0,0</td>
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<tr>
<td>A 03</td>
<td>Scanning the hull to find the correct hull lines / data</td>
<td>22000</td>
<td>2682,9</td>
<td>0</td>
<td>0,0</td>
<td>1</td>
<td>2682,9</td>
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<tr>
<td>A 04</td>
<td>Stability calculations Coastal fishing - 6 -7 conditions</td>
<td>28500</td>
<td>3475,6</td>
<td>1</td>
<td>3475,6</td>
<td>0</td>
<td>0,0</td>
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<td>A 05</td>
<td>Additional stability calculator. Banking I - 6 -7 Fitness *</td>
<td>8000</td>
<td>975,6</td>
<td>0</td>
<td>0,0</td>
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<td>A 06</td>
<td>Stability poster - for postage in boardhouse - separately</td>
<td>2000</td>
<td>243,9</td>
<td>1</td>
<td>243,9</td>
<td>1</td>
<td>243,9</td>
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<tr>
<td>A 07</td>
<td>Complete control of vessel instruction, Loa &lt;11 meters</td>
<td>13500</td>
<td>1646,3</td>
<td>1</td>
<td>1646,3</td>
<td>0</td>
<td>0,0</td>
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<tr>
<td>A 08</td>
<td>Periodically simplified control after 2.5 years or 5 years</td>
<td>10500</td>
<td>1280,5</td>
<td>0</td>
<td>0,0</td>
<td>0</td>
<td>0,2</td>
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<tr>
<td>A 09</td>
<td>Other additional checks are performed on an hourly basis</td>
<td>1100</td>
<td>134,1</td>
<td>1</td>
<td>134,1</td>
<td>2</td>
<td>268,3</td>
</tr>
<tr>
<td>A 10</td>
<td>Re-inspection / verification of error / deficiency / deviation</td>
<td>1100</td>
<td>134,1</td>
<td>2</td>
<td>268,3</td>
<td>2</td>
<td>268,3</td>
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<tr>
<td>A 11</td>
<td>Surveillance by NIS - NOR (Norwegian ship registers)</td>
<td>3000</td>
<td>365,9</td>
<td>0</td>
<td>0,0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>A 12</td>
<td>Issue of existing drawings / documentation</td>
<td>2300</td>
<td>280,5</td>
<td>0</td>
<td>0,0</td>
<td>1</td>
<td>280,5</td>
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<tr>
<td>A 13</td>
<td>Issue of existing stability documentation</td>
<td>6000</td>
<td>731,7</td>
<td>0</td>
<td>0,0</td>
<td>0</td>
<td>0,0</td>
</tr>
<tr>
<td>A 14</td>
<td>Control / approval of the electrical plant (Electricity company)</td>
<td>6000</td>
<td>609,8</td>
<td>1</td>
<td>609,8</td>
<td>1</td>
<td>609,8</td>
</tr>
</tbody>
</table>

| Total | 13610 | 7427 | 12 | 10890 | 6,2 | 5159 |
Annual fee payable to Norwegian Maritime Authority by 2018:

- Length Group, Loa = 10 – 15 meter: NOK 5 291 = USD 645
- Length Group, Loa = 9 – 10 meter: NOK 3 527 = USD 430
- Length group, Loa = 8 – 9 meter: NOK 0
Certificate requirements in the Norwegian fishing fleet, Loa = 10,67 - 15 meter

• See: www.yrkesfisker.no and OPUS Lofoten on certificates and safety training for personnel on fishing vessels <15 meters longest length

• What rights do I get by holding class C fishing license?

• By holding a class C fishing license, you can be a skipper on a Norwegian fishing vessel up to 15 meters / 50 gross tons in the fishing zone Bank fishing I (35 nm) or be a watchdog navigator on Norwegian fishing vessels up to 24 meters / 50 gross tons in the fishing zone I.

• But you will not need a certificate on fishing vessels, Loa < 10.67 meters in accordance with NFO – ref. Norwegian Fisheries Organization.
Fishing skipper – Class C

- **Fishing skipper Class C** (incl. exam and lunch) - NOK 16,800 (USD 2049)
- (You must also have a basic course in the safety of fishermen).
- Example: 28.05.2018 - 01.06.2018
  **STCW F Safety course for fishermen.**
- Total cost NOK 15 500 (USD 1890) (incl. material and lunch) - Registration
Fishing skipper

- This coastal vessel built in 1978 had a length, Loa > 15.45 meter.

- The skipper cut the bow instead of taking new courses to get a higher degree certificate for vessels > 15 m.
Safety management aboard smaller vessels

• The next step is the introduction of safety management also on smaller fishing vessels, and this regulation was implemented by NMA on 1 January 2017. In 2018 the NMA will focus on safety management on smaller vessels, with an emphasis on operational issues.

• Lacking procedures for operations and weaknesses in organizational, leadership and communication issues are often a factor in vessel accidents. The expected safety effect and any other outcomes of these new safety regulations will be discussed in this presentation, not least from the users' point of view.
A safety management system aboard smaller fishing vessels – developed by Norges Fiskarlag

- 1. Information about shipping company, vessel and crew
- 2. Responsibilities / tasks
- 3. Preparedness and alert plan
- 4. First aid
- 5. Risk assessments for different fisheries
- 6. Training, protection and environmental work
- 7. Maintenance
- 8. Attachment
Stability control for a 30 year old coastal vessel

Coastal vessel 10.37 m x 4.05 m

- 34 feet aluminium vessel
- New stability control resulted in demand for more fixed ballast.
- The owner had to put 900 kg in the bottom of the aluminium hull.
- Solid ballast in the form of lead, casted into aluminum pipes laid down at the bottom of the boat
Cod fishing with gillnet in Lofoten in March 2012
Two brothers from Bodø in Nordland county, each have a quota boat, but fish some of the cod quota together on the mate boat. That should give higher personal safety
Older fishermen on smaller boats without quota – are fishing in the so-called «Open quota group»

• There has been a decrease in number of fishing boats in the smaller length groups, Loa < 15 meters and cod quota are often transferred from the smaller length groups to larger length groups.

• That means that many fishermen, especially older ones, selling out their quotas from Group I and ends up to fish a lower quota in Group II, then mostly as one-man fishermen. This seems to give much higher risky operations in respect to fatal accidents.
New coastal vessels means higher safety standard, better working conditions and higher catch capacity
A Selfa Maxi 36 feet with a 2 tonn ballast keel mounted under the vessel
Conclusions

• Hopefully there will be a higher safety standard on the small fishing fleet, Loa = 8,0 – 15 meter
• Around 4000 vessels are in that length group and 1400 - 1500 have been controlled so far, ref. NMA
• Many old vessels will truly go out of the register and also many older fishermen will give up their career
Norwegian Maritime Authority (NMA) – Publications on safety work for fishermen and vessels

- Ergonomics - Noise - Vibrations
- Protective and Environmental work on board ships - for safety in a clean environment
- Safety Training for fishermen - Lifelong learning
- Safety on fishing vessels. Information, preventive measures, statistics, regulations
- Stability Guide for Smaller Vessels (in Norwegian) – Translated from The Danish Fishermen’s Occupational Health Services
- Safety Management on Smaller Vessels. The preferred Maritime Administration
- Risk Assessment - Your safety on board
- Control of Electrical installations - Fishing vessels length, Loa < 15 meter
- Check your fishing vessel (sjark) - General safety check for your fishing boat
References – some SINTEF-reports


Teknologi for et bedre samfunn