OHS IN NORWEGIAN AQUACULTURE

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Report

Occupational health and safety in Norwegian aquaculture

National profile for a FAO report on global aquaculture OHS

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Norwegian aquaculture industry

Source: Directorate of Fisheries (2016)

- Total production: 1.33 mill metric tons
- Sales value: 64 billions NOK
- No of licences:
  - Salmon and trout: 990 grow-out/total 1342
  - Other marine species: 284
  - Molluscs etc: 198
  - Sea-ranching: 12
  - Algae: 242
- Registered 7825 employees
- Fish farming (salmon, trout) is 99.6 % of total biomass production
Key numbers of the Norwegian fish farming industry (2016)

- 160 finfish farming companies
- 990 sites (salmon or trout) in seawater
- Approx. 6400 employees
- The industry needs larger productions areas to grow
- Expanding to new locations further from shore
  - Exposed working conditions
  - Higher demand on the operator
  - Need to adjust requirements on overall design, operations and risk management
Today's fish farms already operate at the safety limit for available technology, fish welfare and personnel

- Structural breakdowns
- Fish escapes
- Parasites and infections
- Reduced availability of farms
- Postponed operations

The Norwegian aquaculture industry is the 2nd most risk exposed occupation in Norway, according to the rate of occupational injuries and fatalities
Net cage

- Frame of ropes
- Netting mounted (laced) to the frame of ropes
- Attached to the floating collar
- System to ensure volume
  - Weights
  - Bottom ring
- Dead fish removal system
  - Pump dead fish

Floating collar of HDPE/plastic
Railing
Jump net
Weights
Frame of ropes
Netting

Dead fish removal system
Occupational injuries 2001-2012
Source: Norwegian Labour and Welfare Administration

Occupational injuries – mode of injury (2001-2012)

HSE survey – work-related sickness absence

12.5% (52 of 447 respondents)

Work-related OHS factors

• Exposure to strong wind
• Exposure to noise
• Work in cold environment/feel cold
• Lifting with upper body twisted or bent
• Work with hands above shoulder height
• Heavy lifting

• Repetitive and monotonous work operations
• Exposure to chemicals
• Work stress
• Lack of involvement
• Insufficient time for rest
• The organization of work is demanding/straining
Areas for mandatory risk management and the regulatory authorities

- Fisheries Directorate
  - Technical requirements fish farm
  - Fish escape prevention
- Maritime Authority
  - Technical requirements vessels
- Environment
- Food Safety Authority
  - Food safety
- Labor and Inspection Agency
  - Health, safety and work environment
- County Governor
OHS regulations in Norway

- The Norwegian Model – statutory tripartite cooperation
- The Working Environment Act
- Organisation of work and working hours
- Safety representatives and safety committee at the workplace
- Mandatory Occupational Health Services
- Safety management
  - Internal Control regulation

The steps of the Internal Control mandatory for the Norwegian aquaculture industry, adapted from (Norwegian Labour Inspection Authority (NLIA), 2017).
Future fish farm technology concepts
Risk model for fish farming

Yang, Utne & Holmen (submitted)

Project:
Reducing risk in aquaculture
Improving operational efficiency, safety and sustainability

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