Challenges facing the management of the aquaculture industry in Norway

GENIMPACT –
Thessaloniki April 19th-22nd 2007

Liv Holmefjord,
Deputy Director General of Fisheries
Directorate of Fisheries
VISION:

Marine Life - Our Common Responsibility

The Directorate of Fisheries shall promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment.
Marine Life – Our Common Responsibility

The Directorate of Fisheries

areas’ of operation and role

✓ marine resource management
✓ aquaculture management
✓ integrated coastal zone management

✓ input to policy-making processes (analyses, statistics, policy proposals)
✓ implementing political decisions (applications, regulations, control)
✓ to be a partner through active cooperation and knowledge sharing
The Directorate of Fisheries – Regional branches

2007
35 mill Euro
450 employees
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Salmonid production from Norwegian aquaculture

Sales, metric tonnes

Rainbow trout

Atl. salmon
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**Norway total**

Intensive operating aquaculture licences per 01 January 2006

- **Atlantic salmon and rainbow trout**: 1019
- **Marine fish species**: 278
- **Invertebrates**: 480

**Finnmark**:  
- Atl. salmon and rainbow trout: 68  
- Marine fish species: 8  
- Invertebrates: 13

**Troms**:  
- Atl. salmon and rainbow trout: 85  
- Marine fish species: 13  
- Invertebrates: 29

**Nordland**:  
- Atl. salmon and rainbow trout: 149  
- Marine fish species: 64  
- Invertebrates: 122

**Trøndelag**:  
- Atl. salmon and rainbow trout: 150  
- Marine fish species: 23  
- Invertebrates: 39

**Møre & Romsdal**:  
- Atl. salmon and rainbow trout: 112  
- Marine fish species: 49  
- Invertebrates: 29

**West** (Sogn & Fjordane, Hordaland):  
- Atl. salmon and rainbow trout: 241  
- Marine fish species: 64  
- Invertebrates: 142

**South** (Rogaland – Østfold):  
- Atl. salmon and rainbow trout: 107  
- Marine fish species: 57  
- Invertebrates: 79
Public administration...

Different sector authorities:

- Norwegian Food Safety Authorities
- County Governor
- Norwegian National Coastal Administration
- Municipalities
- and as a coordinator
- Directorate of Fisheries
The Aquaculture Act

Four focus areas:

✓ Growth and innovation in the industry

✓ Simplification for the industry and public administration

✓ The environment – modern and comprehensive environmental regime

✓ Relationship to other user interests in the coastal zone – efficient land utilisation
Main challenges…

- Impact from aquaculture on marine ecosystem
  - diseases
  - parasites
  - chemicals and medicaments
  - nutrient salt and particular organic matter
  - escaped fish…
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Escaped fish

- 2001
- 2003
- 2005
- 2007

Salmon/trout
Cod/halibut
Escaped fish

Important to prevent because

✓ threat to wild fish stocks
  ✓ genetic interaction
  ✓ disease interaction

✓ loss of reputation

✓ economic loss
Measures set down...

- Technical requirements (NYTEK)
  - technical standards to floating fish farms
  - product certification (new installations)
  - capability certificates (existing installations)

- Internal control scheme (IK Akva)

- requirements for
  - competence
  - emergency preparedness
  - approval of management
Vision: "No Escapees"

- Better regulations
- Better administrative tools
- Increased and better efforts
- Better communication and interaction with other governmental departments
- Better communication and interaction with the industry
From vision “No Escapees”

- develop special husbandry procedures requirements for cod culture
- requirements for re-catching escaped fish
- examine requirements for aquaculture in large units
- review and consider more stringent demands for sites
- develop and implement a risk based control system
- examine the possibility of producing sterile fish
- develop new research based implements (TRACES)
- increased focus on control, including audits

More information at www.fiskeridir.no or www.fisheries.no
National Salmon Fjords / National Salmon Watercourses

- **Objective:**
  - to secure protection for the most important wild salmon stocks in Norway
  - 37 Watercourses / 21 Fjords - restrictions on
    - aquaculture activities
    - effects from agriculture and hydroelectric power plants (on watercourses)
  - proposal to Stortinget to increase the number of Fjords and Watercourses
  - evaluation / monitoring program
Risk assessments...

✓ largest threats when it comes to escapes;
  ✓ what size of fish?
  ✓ where?
  ✓ what kind of fish?
  ✓ time of the year?
  ✓ other factors?
Risk assessments . . . . continued

✓ Location of aquaculture of marine species

✓ new challenges;
  ✓ spawning in cages
  ✓ cod – more eager to escape than salmon
  ✓ vulnerable wild stocks (for instance halibut and coastal cod)

✓ we need more knowledge!!!
Different user interests in the coastal zone

- suitable production areas scarce in parts of Norway
- seabed common property
- increased focus on coastal areas for
  - recreational purposes
  - conservation
  - other industries (tourism, fisheries...)
- good planning processes necessary
- tools for monitoring impacts on surroundings
Management based on scientific advice is crucial for further development of aquaculture industry in Norway.

- good cooperation between research institutions, government authorities and the industry is very important
  - identify critical factors
  - increase knowledge (research)
  - find solutions
  - make decisions
  - implement measures