

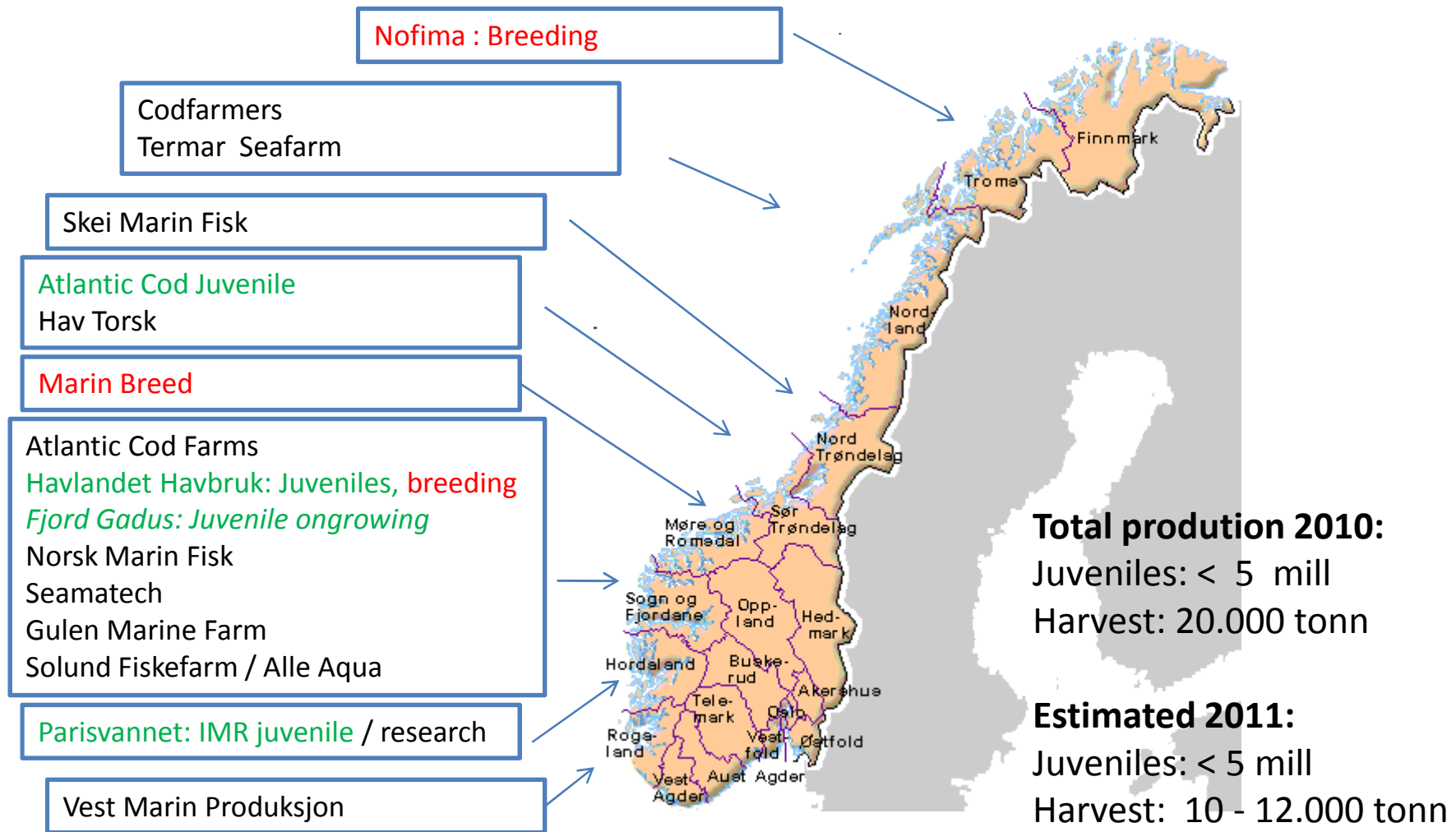
Production of cod - mortality, diseases and vaccination - future solutions

Grethe R. Adoff

Cod Farming in the Nordic Countries
Grand Hotel, Reykjavík
21 September 2011



Cod producers in Norway 2011

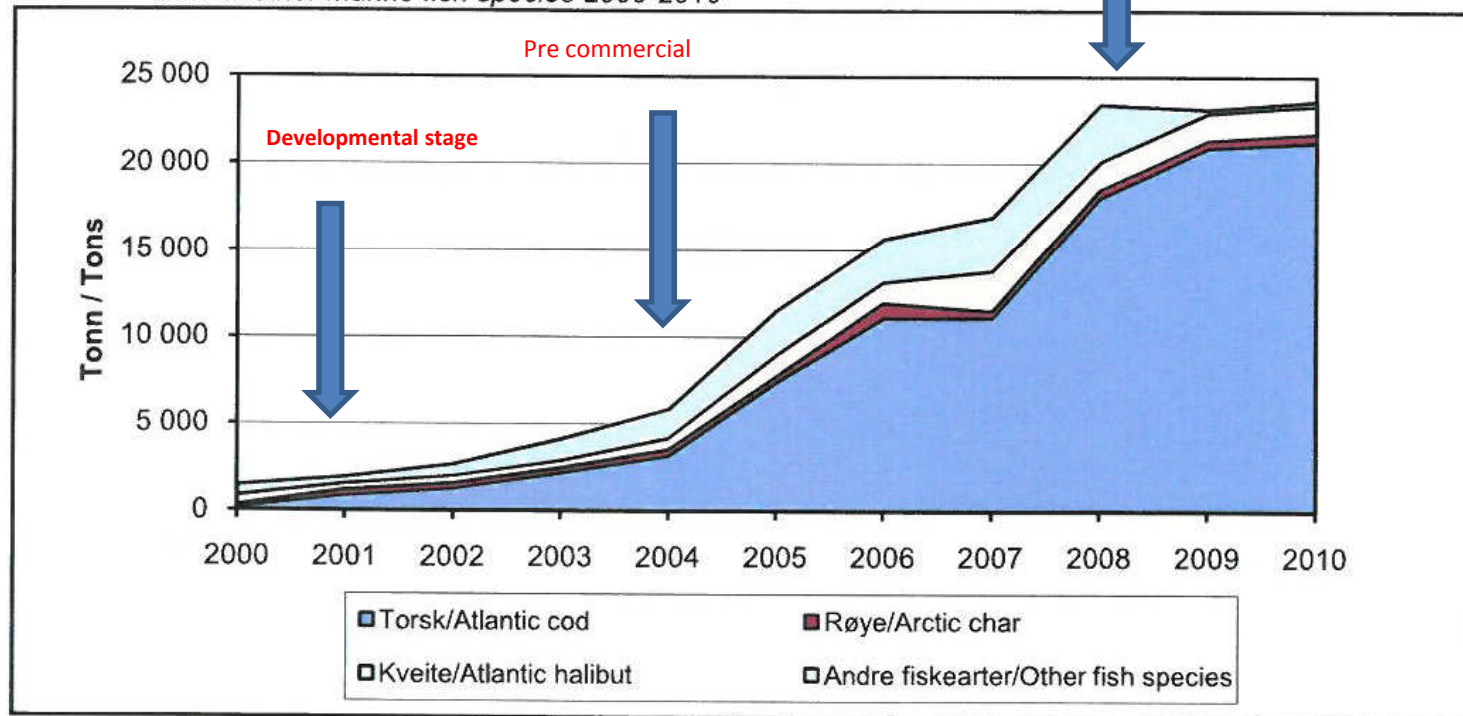


Sales of cod and other marine fish in Norway

Volume

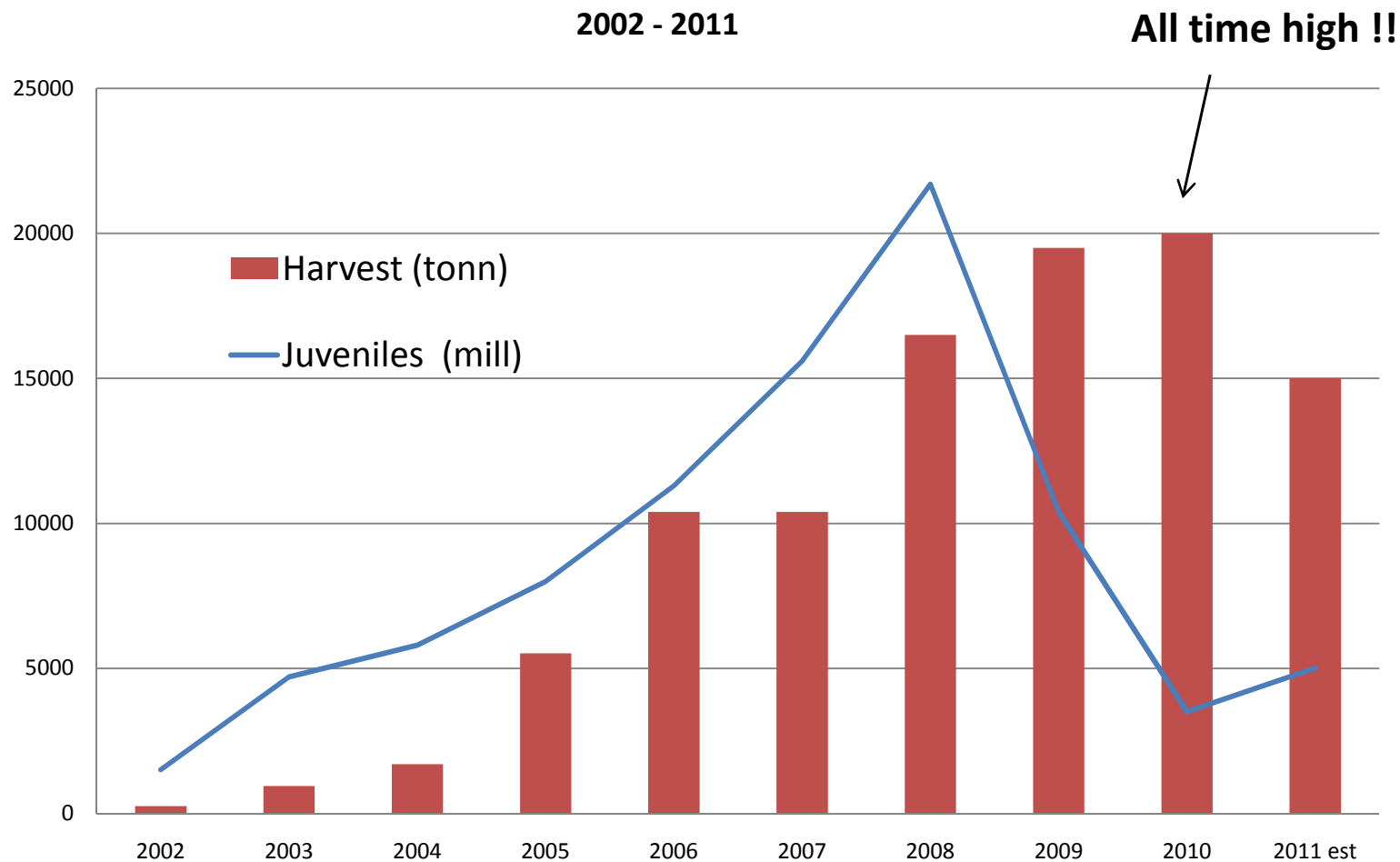
Figur 7. Solgt mengde av andre marine fiskearter 2000-2010

Sale of other marine fish species 2000-2010



Cod production 2011

Production of cod in Norway
2002 - 2011



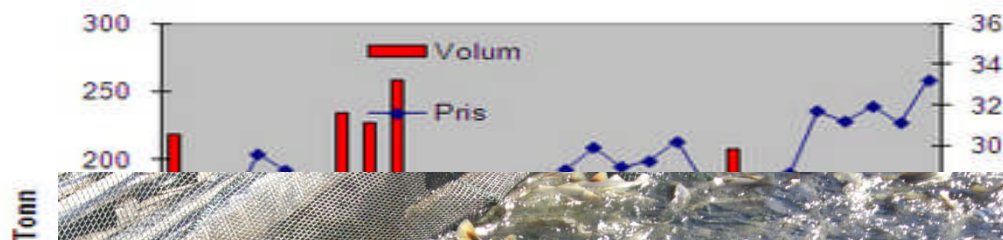


Critical factors for a successful cod farming

1. Prices

2. Production

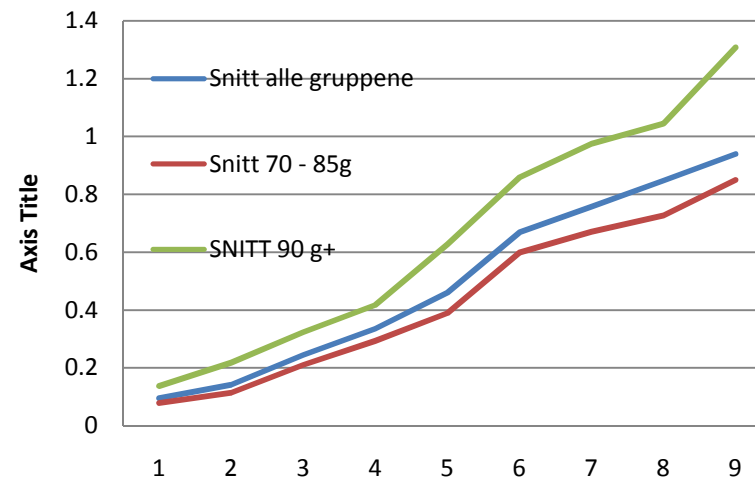
Pris/volum for oppdrettstorsk



Growth

- Best results: 3,6 kg 20 months, but.....
 - Growth is dependent on
 - Temperatures
 - Size of juveniles
 - Time of stocking
 - Densities in cages
 - Management

Growth 2010





Current status cod production

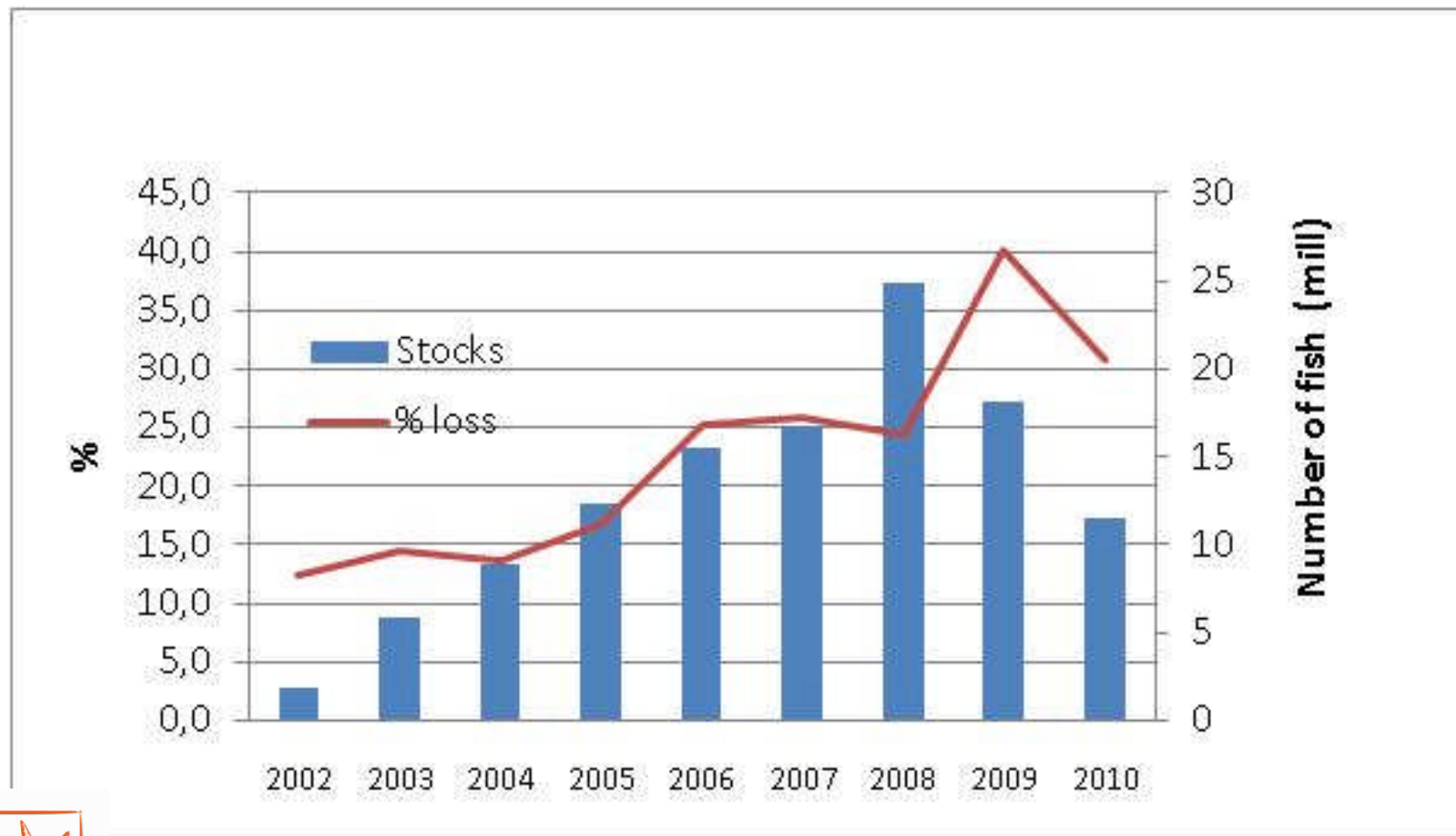


- Low prices -
- Low volumes
- Insufficient juvenile production
- Early sexual maturation
- High mortality and losses



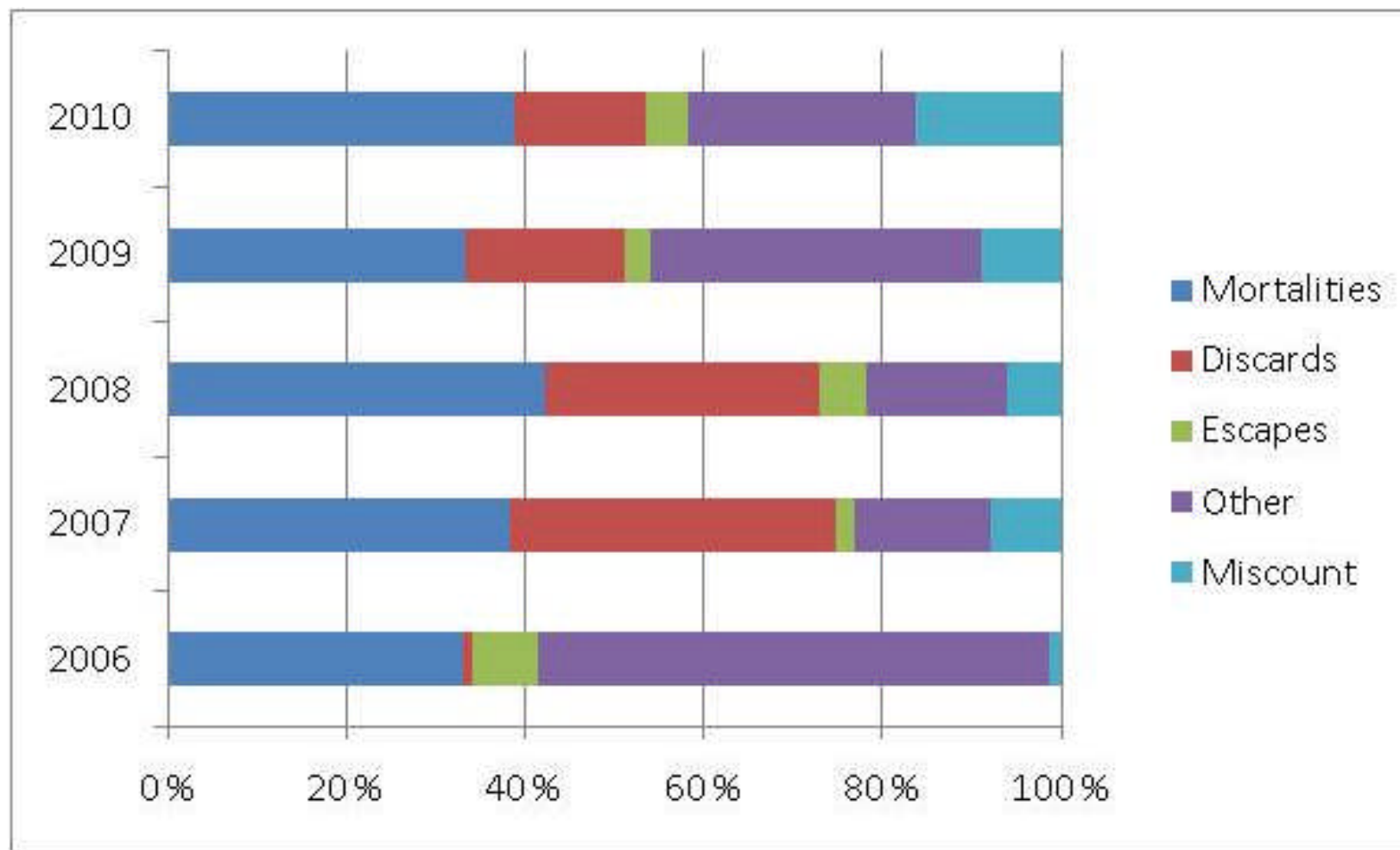
- Good accept in market
- VAP → filets, loins
"Strøm"
- Good growth potential
- Triploid cod → sterile fish
- Good breeding programs
- Less outbreaks of diseases

Mortalities in codfarming



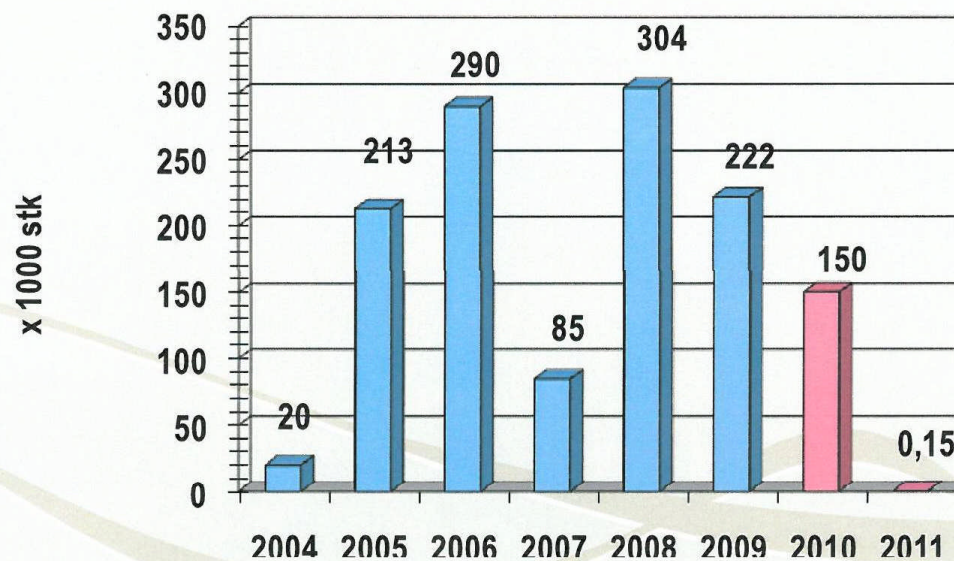


Causes of mortalities in codfarming



Rømming av torsk 2004 – 2011

Oppdretternes innmeldte rømmingstall
oppdatert pr. 1.09.2011



Mortality and losses in codfarming

Output 2010:

3,4 mill juveniles

Harvest 2012 → ? Tons



Mortalities

		3,5 kg	4,5 kg
• 20%	2773600	9700 tonn	12400 tonn
• 40%	2080200	7200 tonn	9300 tonn

Bacterial diseases

1. Vibriosis (*Vibrio anguillarum*)
 - Vaccines, but outbreaks still occurs
 - Treated with antibiotics
2. Atypical furunculosis (*Aeromonas salmonicida*)
 - Can be mistaken for francisellosis
 - Low, constant mortalities in hatcheries
 - Treated with antibiotics
3. Francisellosis (*Francisella noatunensis*)
 - Biggest treath to codfarming in western Norway
 - No mayor break outs last year
 - No treatment
 - Screening of broodstock

Viral and parasitic diseases

1. Viral diseases

1. Nodavirus
2. IPN
3. VHS

2. Parasitic diseases

1. Black spot
2. Tricodina



Other “diseases”

1. Egg bound



2. Intestinal “diseases”



Loosers / "pinheads", Failed cod

- Small fish, usually appear shortly after transfer to cages
- Unclassified causes
- Secondary infections
- May spread disease
- Unaccounted for



Looser fish - experiment

- Experiment by Biomar in Scotland, 250 days
- Looser fish identified as pin heads and not eating
- 8 of 10 tanks developed looser fish
- Looser fish 20% smaller than normal fish
- Experiments showed that > 50% recovered after grading.
- Tanks with medium stocking densities (2kg/ m³) showed lowest looser fish. Low (0,2 kg/m²) and high (20 kg/m³) showed less losers
- Feed with attractants showed better growth

Future solutions

- Production planning / preventive measures
 - Environment control
 - Avoid contamination between cages
 - Screening of broodstock
 - Removal of contaminated fish
- Scale ?
 - Small scale gives better control
- Vaccines
 - Continue research
- Emphasis on juvenile quality and size
 - How to avoid looser fish ?
- Breeding
 - Better resistance
- Nutrition
 - Probiotics

Future solutions cont.....

Higher prices

Value added

Summary

- Number of codfarms reduced since 2008
- Juvenile producers: 2, ongrowing < 10
- Serious reduction in production from 2011
- Good growth potential
- Less disease problems, but still high losses
- No escapes this year
- Bacterial diseases most important
- Better prices necessary for a successful codfarming



Marint nettverksmøte 2012

Tid: 8. – 9. februar 2012

Sted: Bergen – Scandic Hotel Bergen City



Program:

Onsdag 8. februar

12:00 – 13:30 Marint oppdrett – hva nå ? 5 – 6 innlegg

- Innlegg fra Fiskeridepartementet
- Hvordan er nå mulighetene i FHF, IN og NFR?
- Nye driftsformer - polykultur
- Lønnsomhet i liten skala
- Levendefangst
-

13:30 – 14:30 Smaks presentasjoner nye produkter

Fisketorget i Bergen presenterer seg.

14:30 – 18:00 Faglige workshops - 2 parallele sesjoner med kaffepause imellom

Tema - eks: 6 – 8 foredrag + diskusjon foredrag på hver workshop

1. Vekst og ernæring torsk, kveite
2. Leppefisk – faglige problemstillinger

Torsdag 9. februar

08:30 – 10:30 Utstyr for marint oppdrett

Utfordre utstyrsnæringen til å komme med sine tanker og ideer

- Lukkede anlegg – nye løsninger for marine oppdrettsanlegg
- Fôringsteknologi -
- Vannbehandling – landbaserte konsepter

10:30 – 11:00 Kaffepause

11:00 – 13:00 Marked, organisering og veien videre

13:00 Lunch – avslutning

Andre aktiviteter:

- Mulighet for næringens egne møter og fagmøter
- Kveitenettverksmøte
- Kurs for fagbrevelever
- Posterpresentasjoner