



Socio-economic impact of salmon farming some issues from Norway

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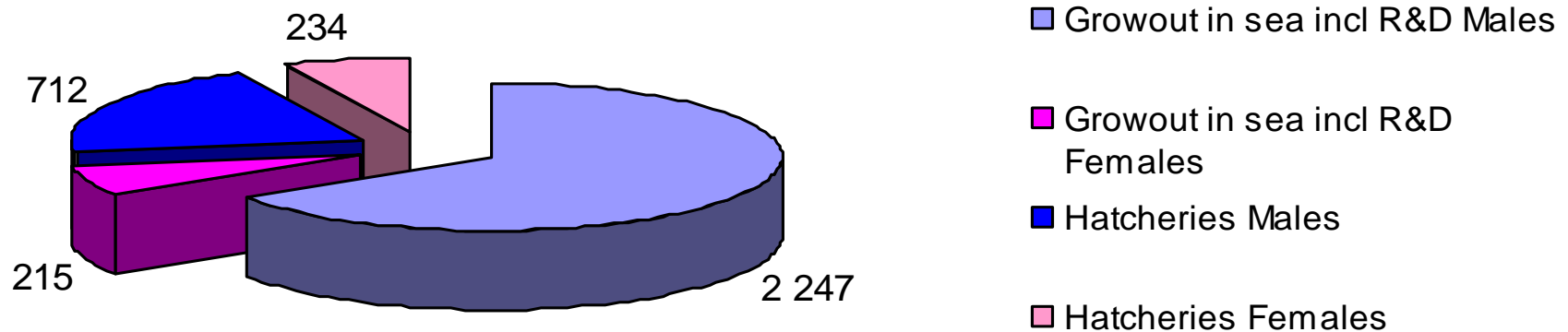
Norwegian salmon farming 2006

- Sales value \approx US\$ 5 billion
- 0.7% of gross national budget
- 272 licences for hatcheries
 - (of these \sim 50 for restocking purposes)
- 921 licences for grow out
- 26 licences for brood stock
- 51 licenses for R&D (many of these small)
- \sim 2000 sites approved
- \sim 1100 sites with fish some time during the year
- \sim 700 sites in active use



Employment 2006

Employment salmon and rainbow trout farming Norway 2006



Total 3 408 persons - 13% females

Total value chain (in Norway) 2005

- 18500 man-years, most of these for salmon farming
 - Breeding, hatcheries, grow out, filleting/VAP, sales
 - Compare to fisheries 27800 man-years
- Production value¹
 - 42 billion NOK (8 billion US\$)
 - Compare to fisheries 52 billion NOK (10 billion US\$)



¹ Value of production + inventory value change

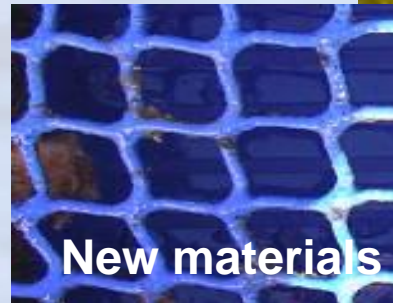
Value chain effects

- 1.0 man-year in salmon production
-> 1.7 man-years in other activities
up- and downstream
 - Compare to fisheries 1.0 -> 0.7
- Gross national budget
 - Up- and downstream activities
creates 1.3 times the core salmon
production effects to the GNB
 - Compare to fisheries where up- and
downstream is only 0.6 of core value



Cleaning nets

- More and more common to outsource services as net-cleaning, changing of nets, grading the fish etc
- **Creating new job opportunities in remote areas**

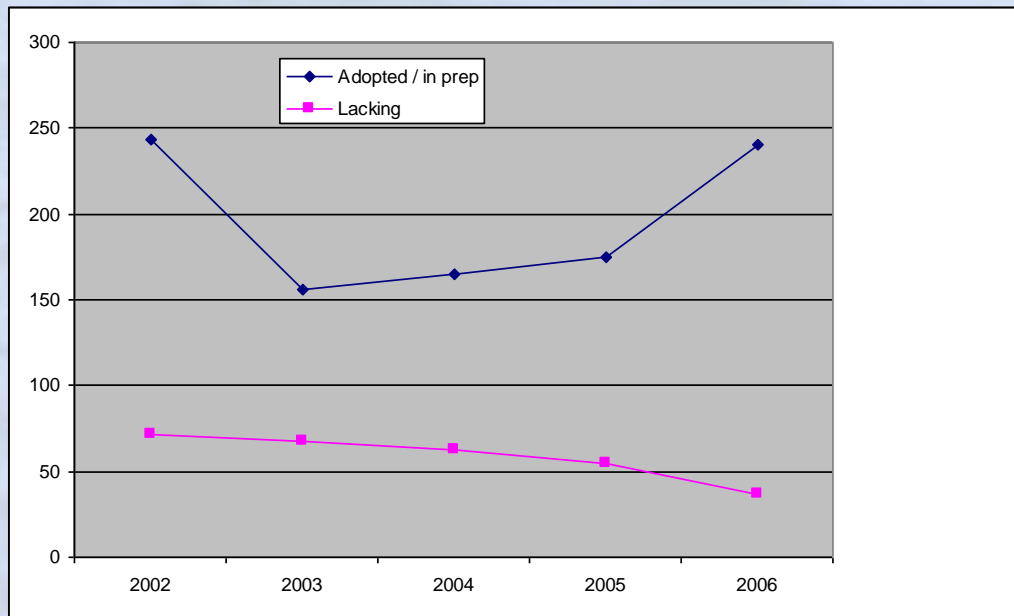


Use of cleanerfish

- Wrasse is used to clean salmon for salmon lice
- Fishing for wrasse is an important new part time job for fishermen, young people
- 1 million wrasse used annually
 - Was up to 2.5-3.0 million, decreased, now increasing again



Integrated coastal zone plans



An important "tool" for dialogue and conflict reduction

Competition for sites

- Salmon farms, fishing, tourism ++ (as everywhere)
 - DIALOGUE as early as possible shown to reduce / solve conflicts
 - Tourists (national and foreigners) want to learn about salmon farming – new “experience farms” is developed
 - Cooperation between salmon farmers and fishermen
- Larger salmon farming sites => reduction in # in use
 - Important to use sites with high carrying capacity / acceptable environmental impact as good as possible

Wild fish fear or like salmon farms?

- Evidence in some areas that wild cod change their swimming route where salmon farms (and cod farms) are located
 - Both attraction towards and movement away from the farms has been shown with acoustic tags
 - Wild fish attracted or protected by fish farms will not be "fish-able" to the local fishermen (protection zone around the farms)
 - Wild fish around cages grow faster, might have reduced quality, but
 - Win-win potential is tested:
Can the salmonfarmers catch the wild fish (saithe) around the farms and give the fishermen the opportunity to keep these fish in cages (with or without feeding) until good market quality



Flatanger county

- 1250 inhabitants
- 3 salmon farming companies today
 - Marine Harvest, Salmar, Bjørøya
- Largest site 4000 tons production
- Large part of people living in the county directly or indirectly involved in salmon farming
- Salmon farmers investing in sports hall, boat building shipyard, diving service company etc

- Without salmon farming Flatanger would be “dead”
- Realized this early
 - Forerunners in good environmental practise
 - Sealice control
 - Site selection
 - Coastal zone planning
 - Strong support from local politicians

OUR EXPERIENCE: DIALOGUE, RESPECT and COOPERATION IS IMPORTANT



TO MAXIMIZE SOCIO-ECONOMIC BENEFITS FROM SALMON FARMING