Baltic Sea Farming – An Industry Perspective

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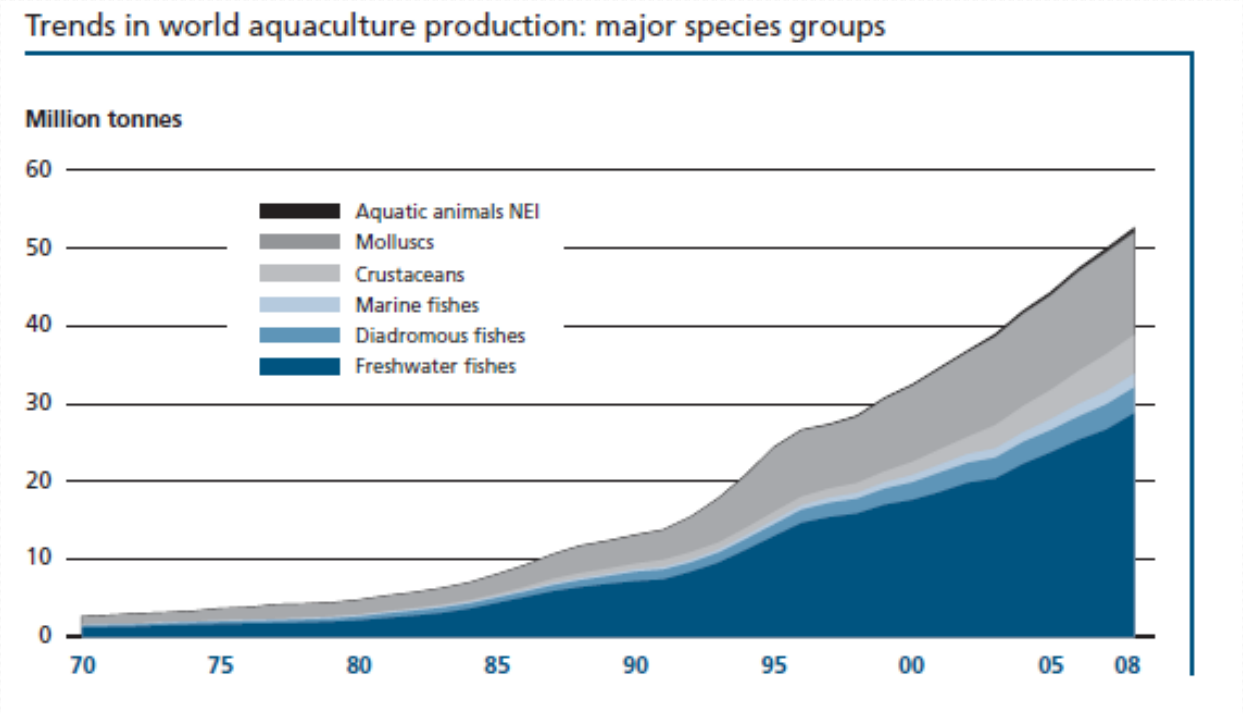
The Train is Running

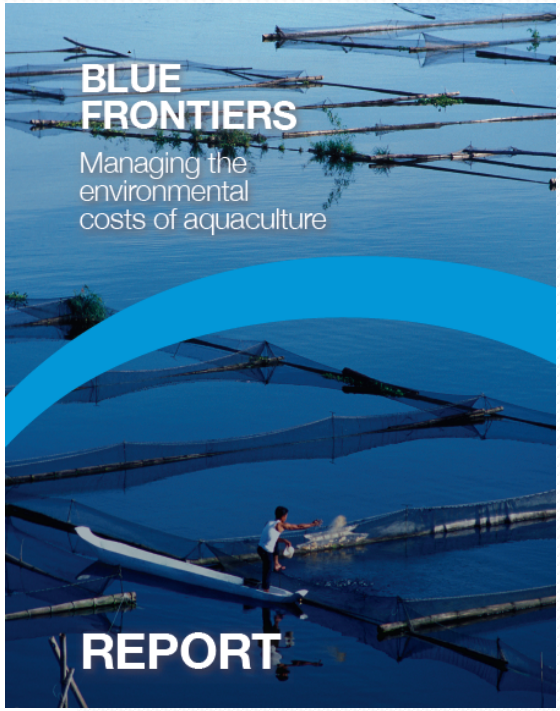
- Fastest growing food production: 8,4 % pr. year since 1970



Fao 2010. Seaweed missing. 15 mio. / yr

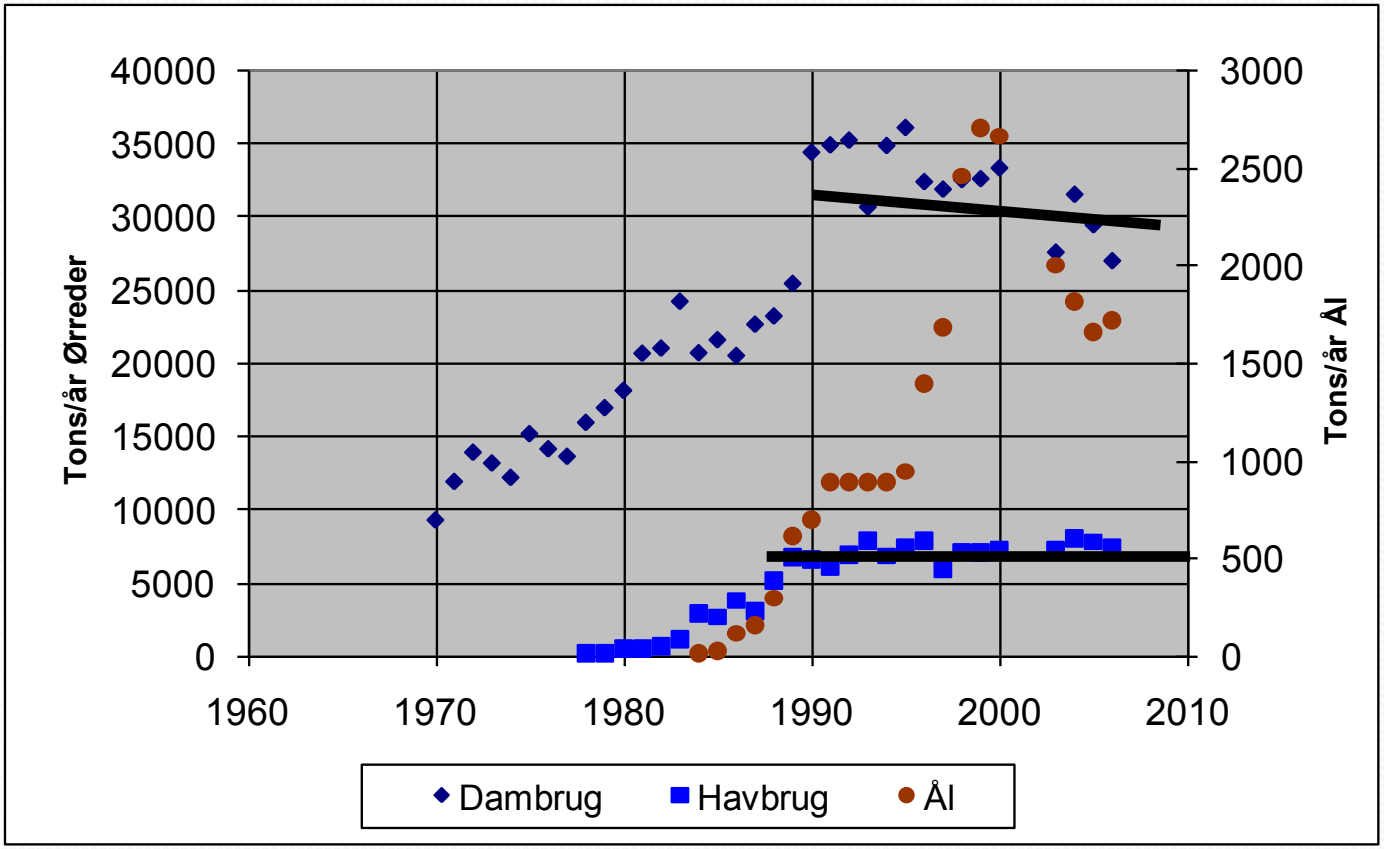
An Environmental Efficient Food Production

Commodity	Nitrogen emissions (kg/tonne protein produced)	Phosphorus emissions (kg/tonne protein produced)
Beef	1200	180
Pork	800	120
Chicken	300	40
Fish (average)	360	102
Bivalves	-27	-29
Carps	471	148
Catfish	415	122
Other finfish	474	153
Salmonids	284	71
Shrimps and prawns	309	78
Tilapia	593	172

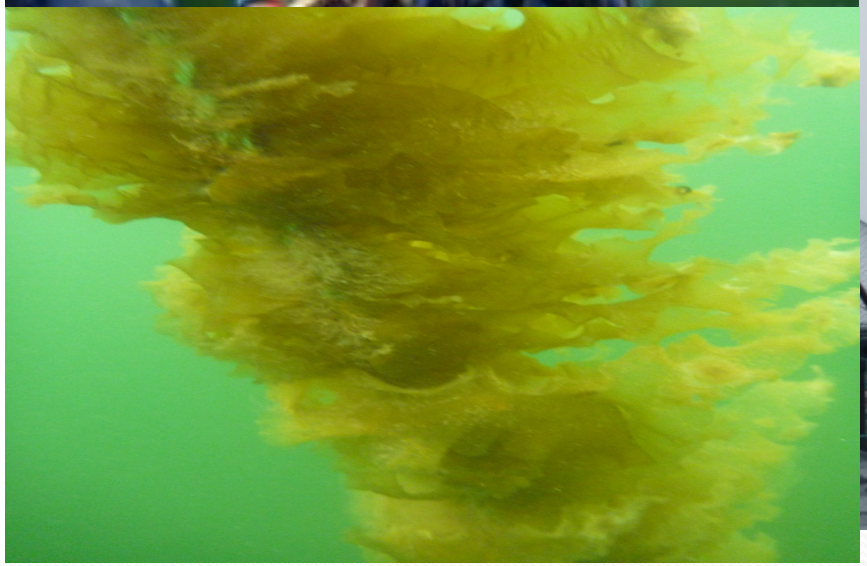


http://www.conservation.org/publications/Pages/blue_frontiers_aquaculture.aspx

Aquaculture in Denmark (and in EU)??



- Stagnation. Because of Environmental Misregulation
- Cost = A Great Belt Bridge! Look at Norway.

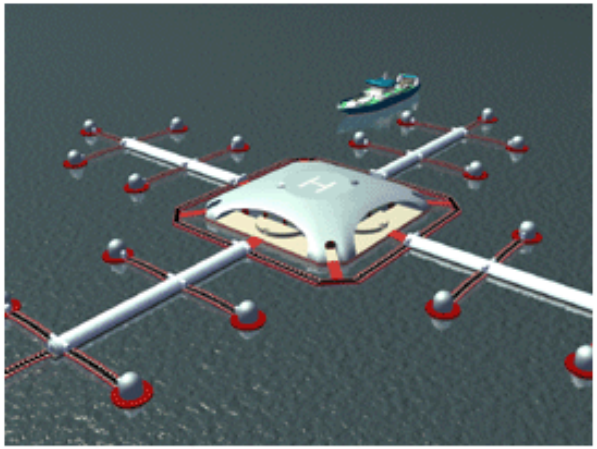


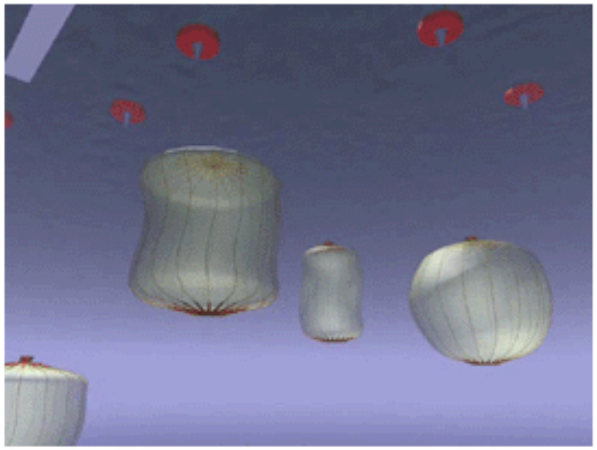
Government Plan from 3. Nov 2005: Strategic Goal

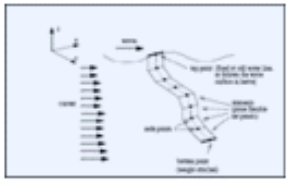
- Increase production to:
  - ***60.000*** tons in landbased farms
  - ***40.000*** ton in seafarms
  - 10.000 ton other species
  - 5.000 ton eels
- N-discharge max. 2.400 tons N/yr. (Now about 1.000)
- Increase environmental efficiency
- What happened: New landbased farms, but no increase in production

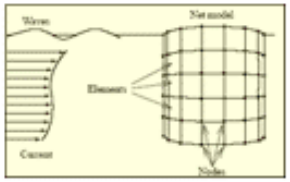
Why Sea Farming?

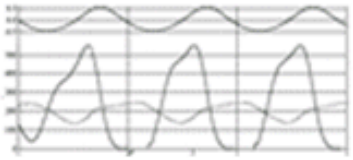
- Restricted space on land:
  Use the Sea
- Much space: in DK 105.000 km² sea area
- No lack of water
  - 1 ton grain use 1000 ton water
- We should culture fish, mussels and seaweed
- Omega3 fatty acids: a limited ressource

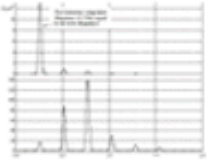












Sintef

Danish Potential

- 1 % of the Danish Sea= 1050 km²
- 2 bio. EUR / Yr

	Production	Area	Wetweight	Nitrogen	Price	Value
	kg C/m2/yr	Km2	mio. tons/ yr	ktons/yr	EUR/kg	Mio. EUR/ yr
Fish	2,5	10	0,25	10	1,33	333
Shellfish	1	100	1	-10	0,27	267
Seaweed	1	1000	10	-100	0,13	1.333
Total			11,25	-100		1.933

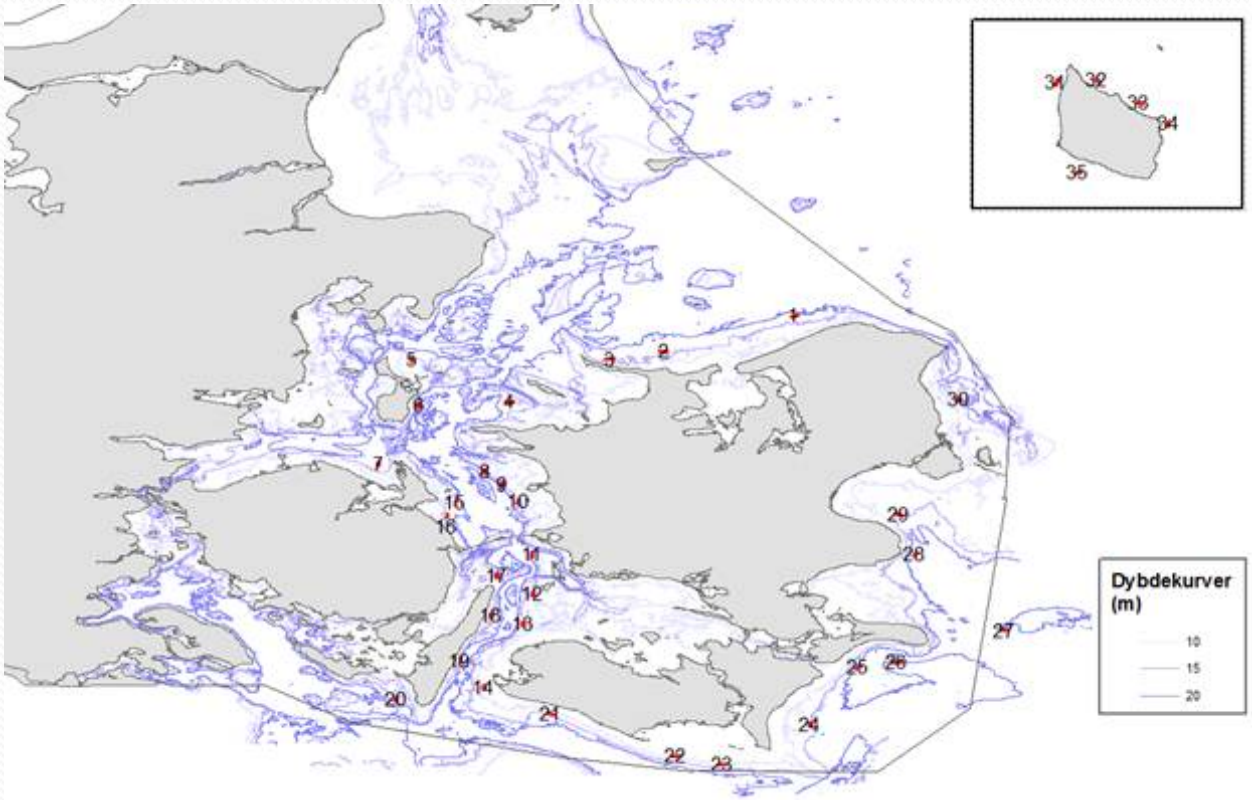
Fish: 0.25 mill tons/yr

Shelfish: 1 mill tons/yr

Seaweed 10 mill tons/yr

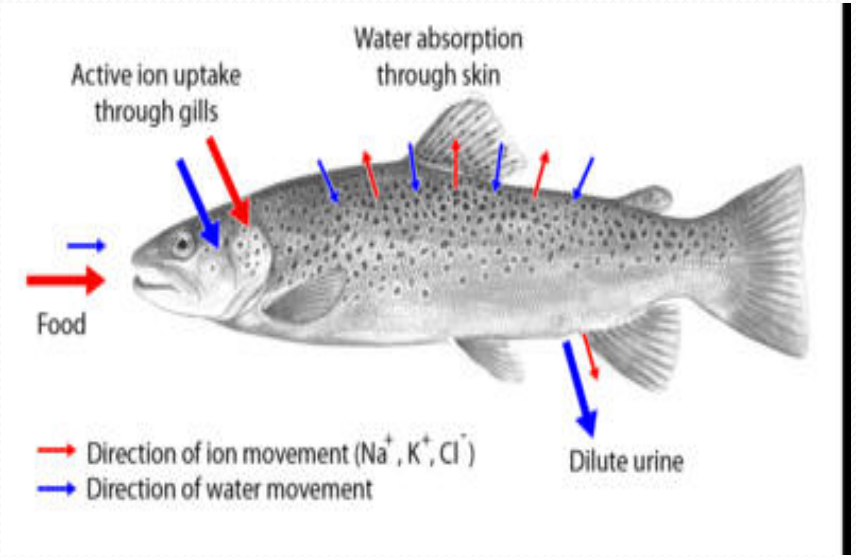
Marine Spatial Planning

- Very slow now….
- A sea farm plan on its way



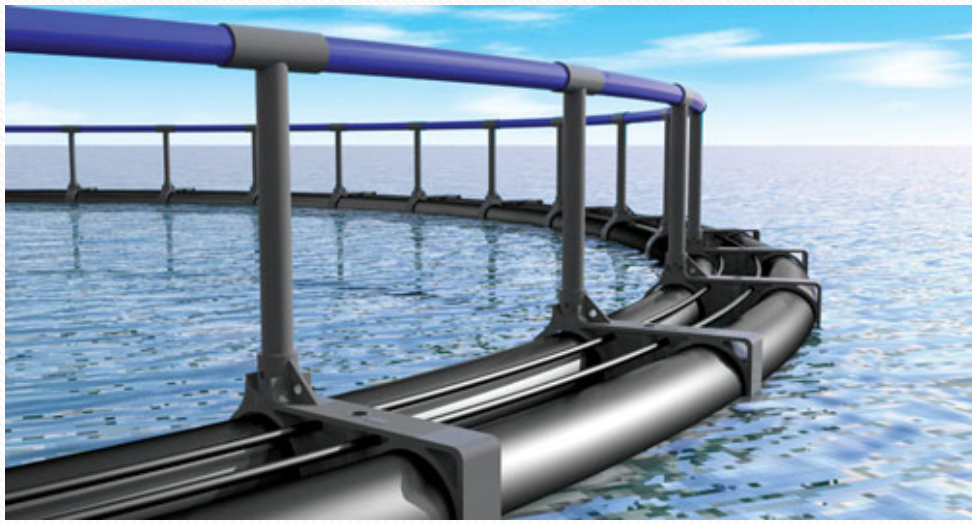
Baltic Suitability

- Perfect for Salmonoids
  - Iso-osmotic
  - Not too warm
  - Relative protected
  - Few toxic algae
  - No Sea Lice
- Not good for mussels
- Seaweed: Maybe furcelaria



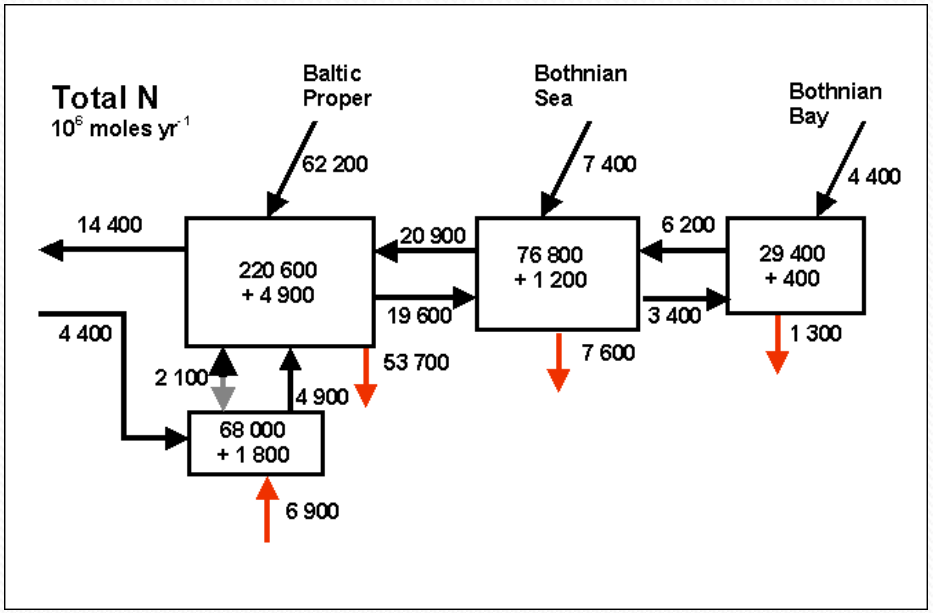
Baltic Potential

- Salmonoids
  - 500.000 tons / yr at 100 sites
  - 2 Billion Euros/yr
  - 60.000 jobs
- Primarily Rainbow trout
- Baltic Salmon culture should be demonstrated
- Bornholm could be a center



Mini EIA

- Main problem: Discharge of nutrients
  - About 20.000 tons / (1.400 10^6 moles) Nitrogen / yr
- Reaction:
  - And so what? Small impact, big profit
- Some IMTA i outer Baltic
- Coupling with Fishery



http://nest.su.se/mnode/europe/balticregion/Baltic2001/baltic_seabud.htm

Release the Industry

- A good bargain for society
- Let's increase production now
- And solve the problems on the go

Discussion