

Environment legislation in Denmark

Nutrient discharge and the possibility for outlet regulation and compensatory measures for fish farms

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Dansk Akvakultur - Producers Organisation Dansk Akvakultur

Producers:

- 170 Freshwater fish farms, semi-RAS, model farms (Rainbow trout)
- 19 Seacage farms (Rainbow trout)
- 15 - 30 Musselfarms (Blue mussels)
- 1 Seaweed
- 5-7 RAS (Rainbow trout, Salmon, Kingfisk, Pike perch, Eel)

Feed factories: BioMar, Aller Aqua

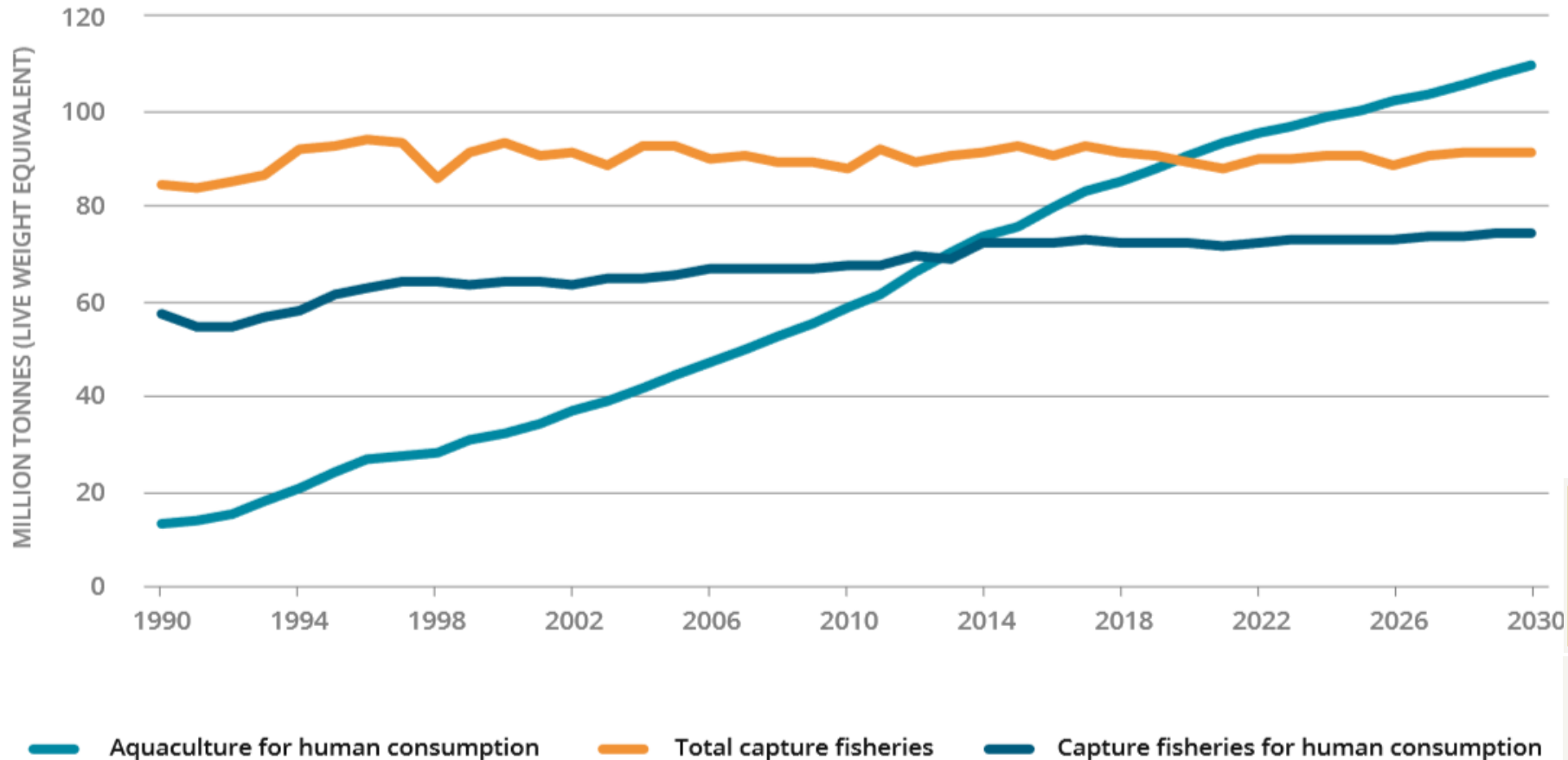
Processing factories and export

Landbrug og Fødevarer (Danish Farmers organisation)
FEAP (EU)



Global perspective - need for more fish

Global capture fisheries and aquaculture production, 1990-2030

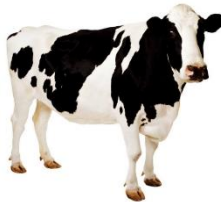





VERDENSMÅL
for bæredygtig udvikling



Figur 50 - S.186, 2018, "The State of World Fisheries and Aquaculture, FAO.

Key numbers for animalsk production

				
Antal kg CO2 pr. kg spiseligt kød	30 kg	5,9 kg	3,4 kg	2,9 kg
Vandforbrug (L/kg spiseligt kød)	15.400 liters	6.000 liters	4.300 liters	1.400 liters
Foderkvotient	4 til 10	3	2,2	1,2
Energy retention	27%	10%	14%	27%
Protein retention	15%	21%	18%	24%
Spiselig udbytte	41%	46%	52%	68%
Spiseligt kød pr. 100 kg foder	4 til 10 kg	21 kg	17 kg	57 kg

(Frans Silvenius, Timo Mäkinen, Juha Grönroos, Sirpa Kurppa, Raija Tahvonen, Markus Kankainen, Jouni Vielma, Kirsi Silvennoinen, Jari Setälä, Salla Kaustell & Hanna Hartikainen, 2012, "Kirjolohe kasvatuksen ympäristövaikutukset", MTT Raportti 48, Helsinki, Finland)

(Title translated to English: "The environmental consequences of rainbow trout production")

Fish production in Denmark - Strategy

Marine / strategy

1. Sea cage – off coast/off shore
2. Sea cage and compensation – IMTA
3. Landbased recirculation - RAS
4. Ecology

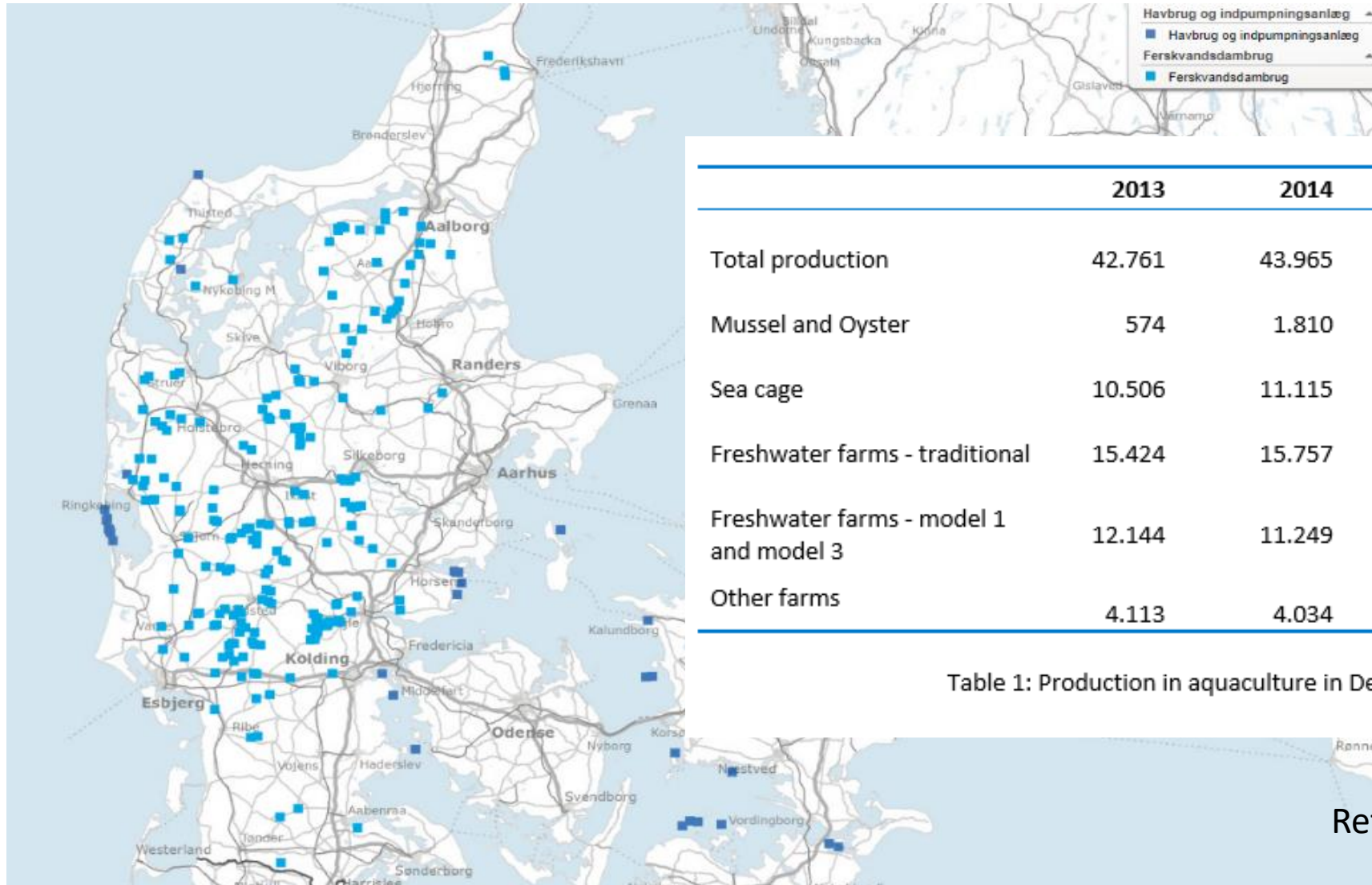


Freshwater / outlet regulation

1. Traditionel fish farms
2. Model 1 – recirculation (without biofilter)
3. Model 3 – fully recirculated / RAS (water from drainage or groundwater)
4. Ecology



Aquaculture in Denmark



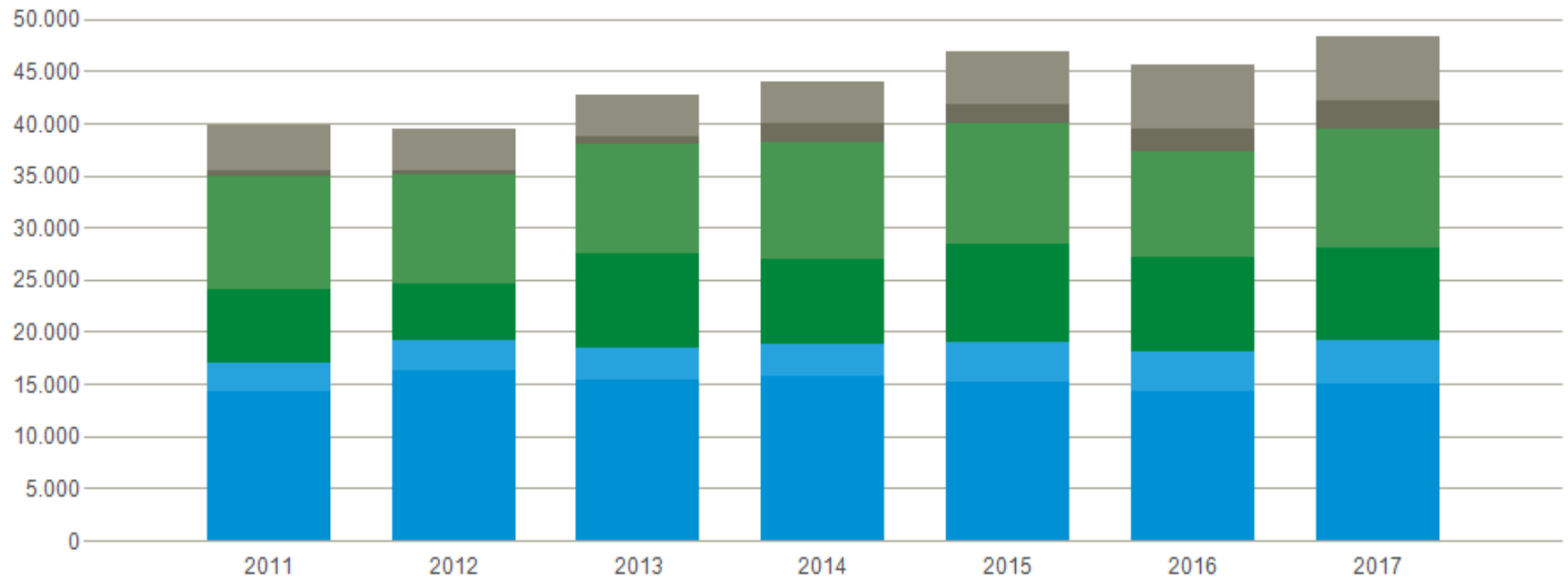
	2013	2014	2015	2016	2017
Total production	42.761	43.965	46.890	45.619	48.300
Mussel and Oyster	574	1.810	1.809	2.251	2.814
Sea cage	10.506	11.115	11.724	10.117	11.427
Freshwater farms - traditional	15.424	15.757	15.118	14.351	14.934
Freshwater farms - model 1 and model 3	12.144	11.249	13.209	12.743	13.062
Other farms	4.113	4.034	5.029	6.158	6.063

Table 1: Production in aquaculture in Denmark (tons a year)³.

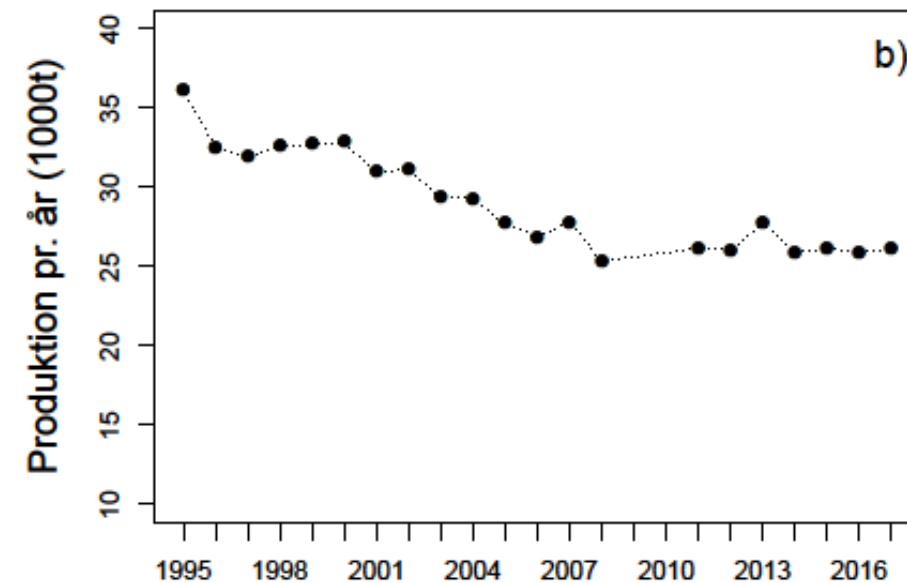
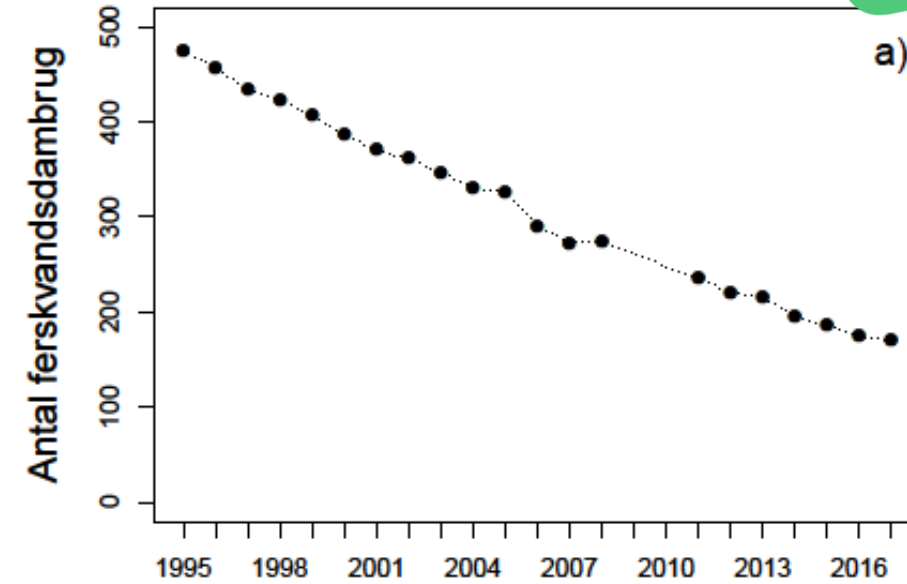
Akvakultur

Fiske- og skaldyrsarter: **Total** | Enhed: **Mængde i tons** | Anlægstype:

■ Traditionelle dambrug
 ■ Modeldambrug type 1
 ■ Modeldambrug type 3
 ■ Havbrug
 ■ Muslinge anlæg
 ■ Andre anlæg



Freshwater fish farms



Ref. Novana reports

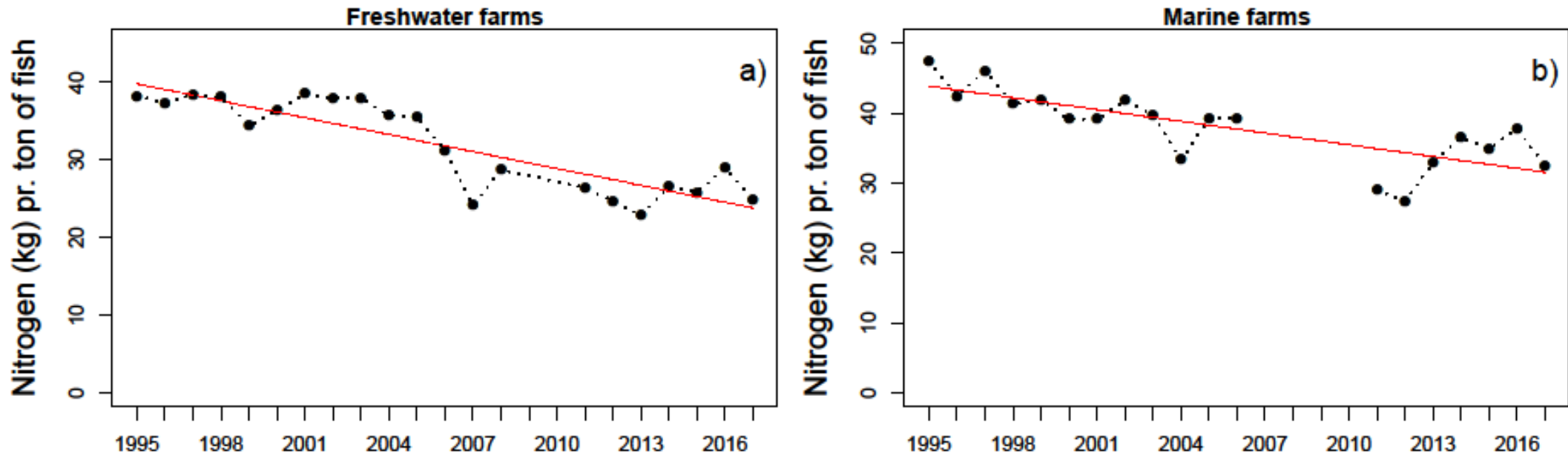
År

Environmental regulation

No specific aquaculture law in Denmark - Several General law

Specific legal orders about aquaculture (freshwater farming, location of marine farming, mussel farming)

Appeal board: Miljø- og Fødevareklagenævnet, Court



Ref. Novana reports

Freshwater farms – Outlet regulation

Environmental permission (EIA, Habitat assessment)

I 2012 new regulation schemes – outlet regulation

- Outlet regulation / nutrient discharged
- Feed quota

Recirculation, 26 analyses random a year, control program.

BAT: There is different mandatory BAT–requirement depending on the size of the production.

License to water intake (habitat)

valid 10 years.

Authorities: Municipality



⊕ BAT requirement in the freshwater fish farm Order (no. [1567 7.12.16](#))

Table 1: Maximum allowed outlet for fish production under size 1 kg fish.

Productions size	Nitrogen	phosphorous	BOD
	kg/ton fish	kg/ton fish	kg/ton fish
0 - <25 tons	$42 + 5,5/25*(25-X)$	$2,5 + 1,4/25*(25-X)$	$55 + 24/25*(25-X)$
25 - <55 tons	$35 + 7/30*(55-X)$	$2,2 + 0,3/30*(55-X)$	$39 + 16/30*(55-X)$
55 - <230 tons	$27 + 8/175*(230-X)$	$1,4 + 0,8/175*(230-X)$	$28 + 11/175*(230-X)$
≥230	27 kg/ton fish	1,4 kg/ton fish	14 kg/ton fish

Table 2: BAT requirements to produce large trout (over 1 kg fish, but not for brood stock)

Productions size	Nitrogen	phosphorous	BOD
	kg/ton fish	kg/ton fish	kg/ton fish
0 - <25 tons	44	4,2	87
25 - <55 tons	39	3,1	71
55 - <230 tons	30	2,7	37
≥230	27	1,8	19

Sea cage farms

Environmental permissions (EIA, Habitat assesment)

- Regulated on N and P quota (some older also feed quota)
- BAT

Authorities: Municipal until 1 NM

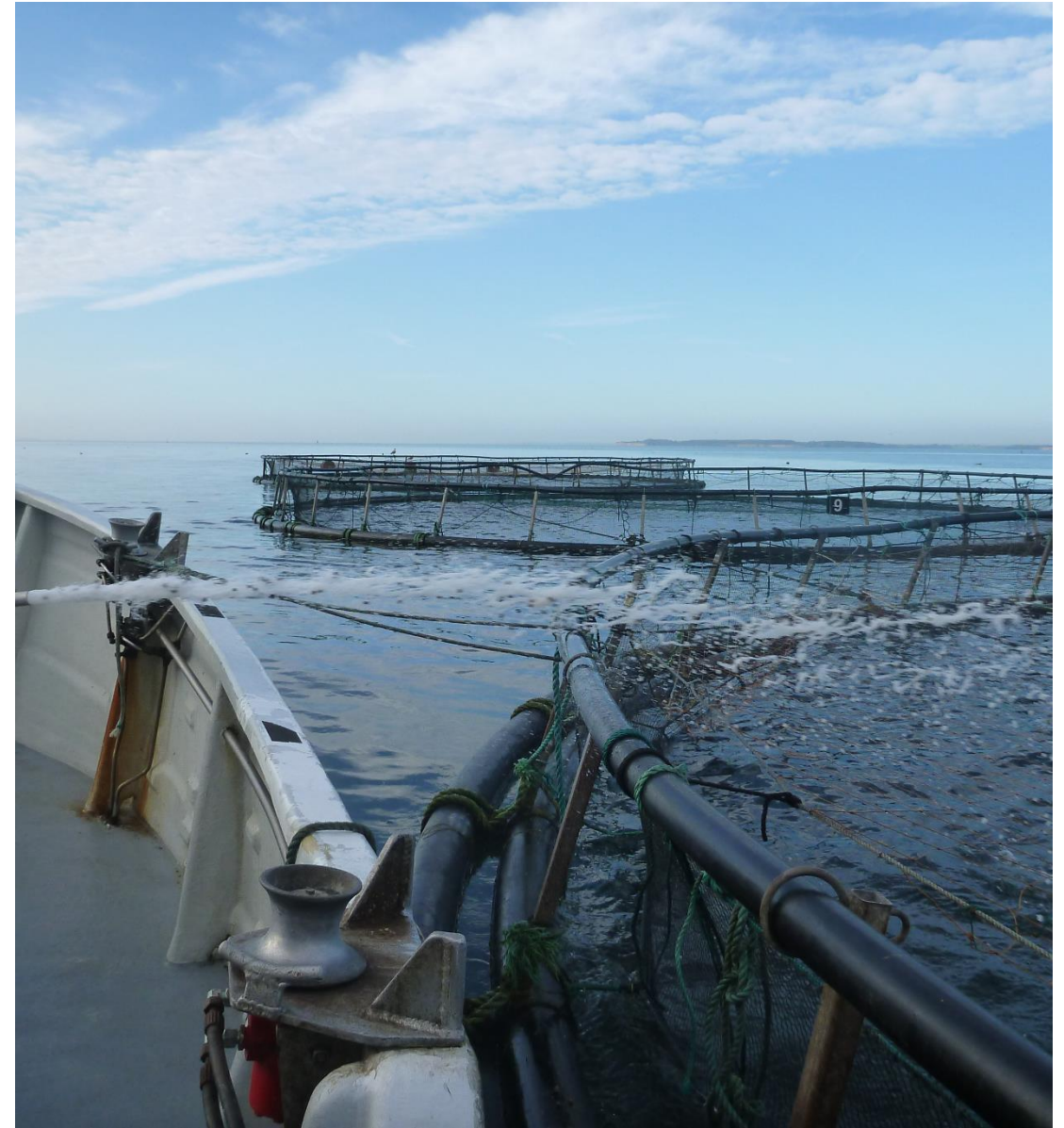
Environmental Protection Agency from 1 NM

Location permissions

Other users, habitat assessment,

Valid in 10 years

Authorities: Environmental Protection Agency



EU- and national Strategy and Vision for Aquaculture



Strategy 2007–2013: Expansion 2 x Freshwater, 4 x Sea cage

Strategy 2014–2020: 25% growth in production, offshore locations

2015: Food and Agriculture package (Landbrugs og Fødevarer)

2016: Growth plan for Aquaculture

- 380 t N to freshwater farms / RAS
- 43 t N existing seacage farms
- 800 t N for offshore sea cage farms outside the VFD-area

Status (2018):

Freshwater farms: ca. 650 t N

Sea cage farms : 373 t N

RAS: 171 t N



380 t ekstra N “reserved” in the Water Management plans to existing and new freshwater fish farms, marine- and freshwater RAS

Phased in over three years (2019, 2020 and 2021)

2019: Application for 318,72 tons N – permission to 82,046 tons N.

Next step: Environmental permission from the authorities

New order: Bekendtgørelse om indfasning af kvælstof til akvakulturerhvervet BEK nr 1327 af 26/11/2018)

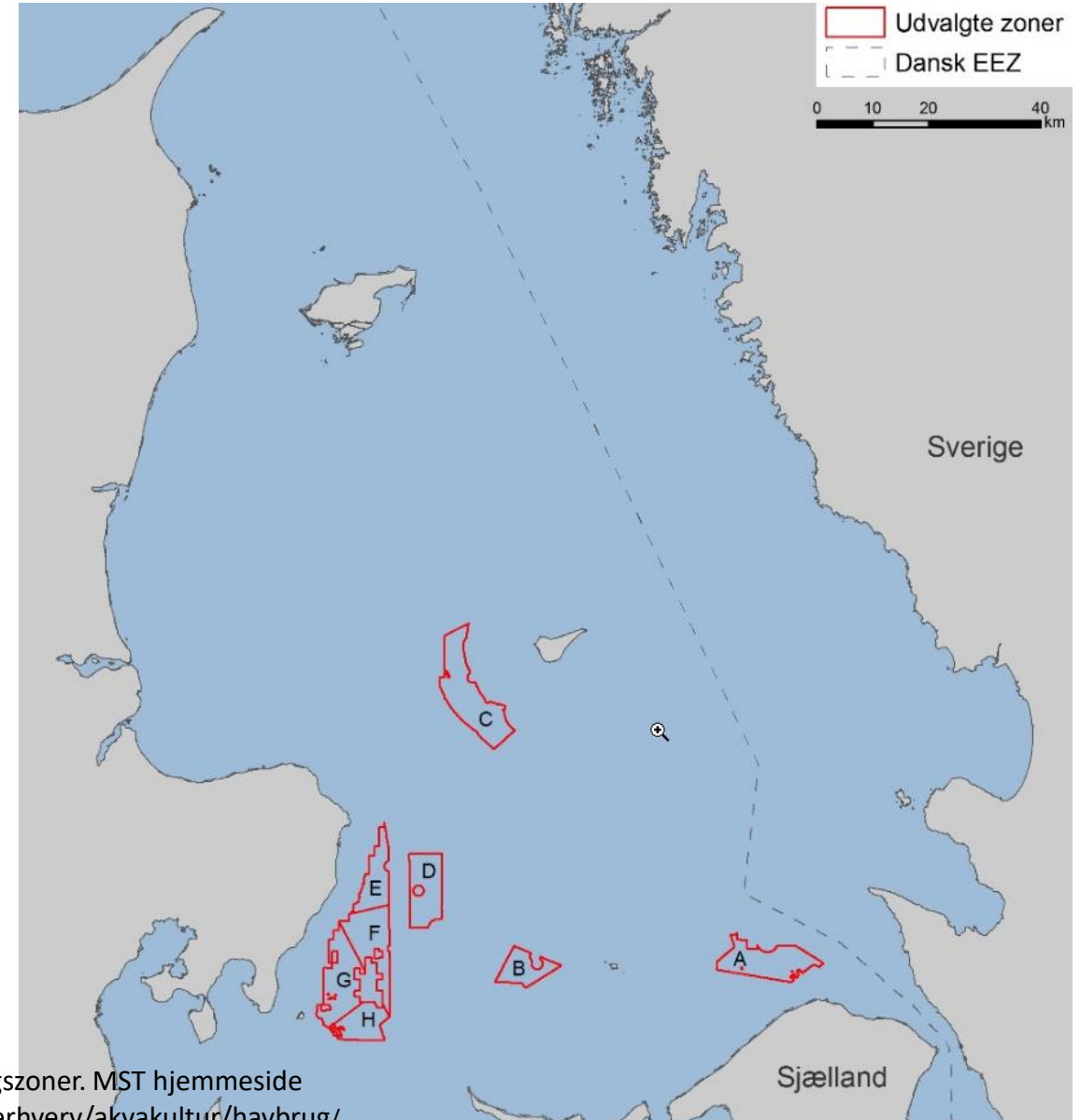
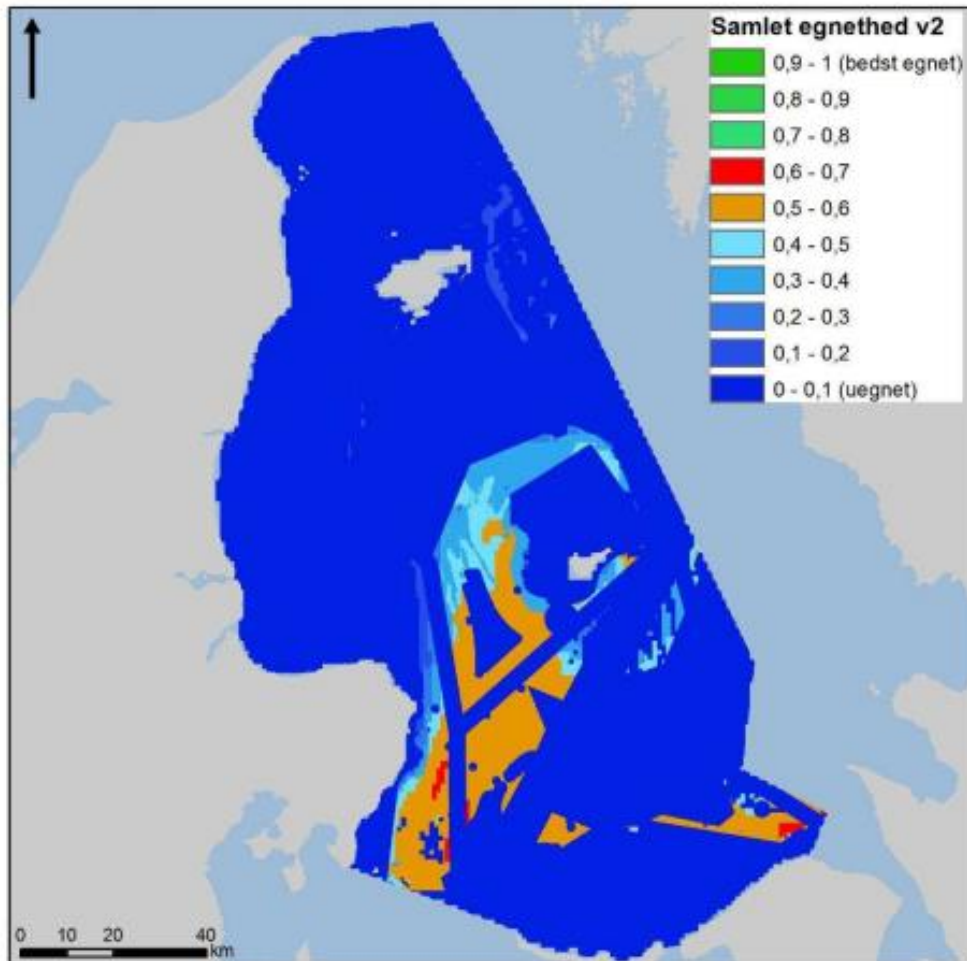


800 t N "reserved" to Offshore Sea cage in Kattegat

Feb. 2017: Localisation planning (DHI/DCE)

8 zones (100 t N) outside the WFD-area

Compensatory measures –
compensation for N and P inlet in WFD-area



Use of compensatory measures

L111 – Law proposal (2016) -
Possibly to use compensatory measures for establishing new sea cage farms and for expansion of existing farms.

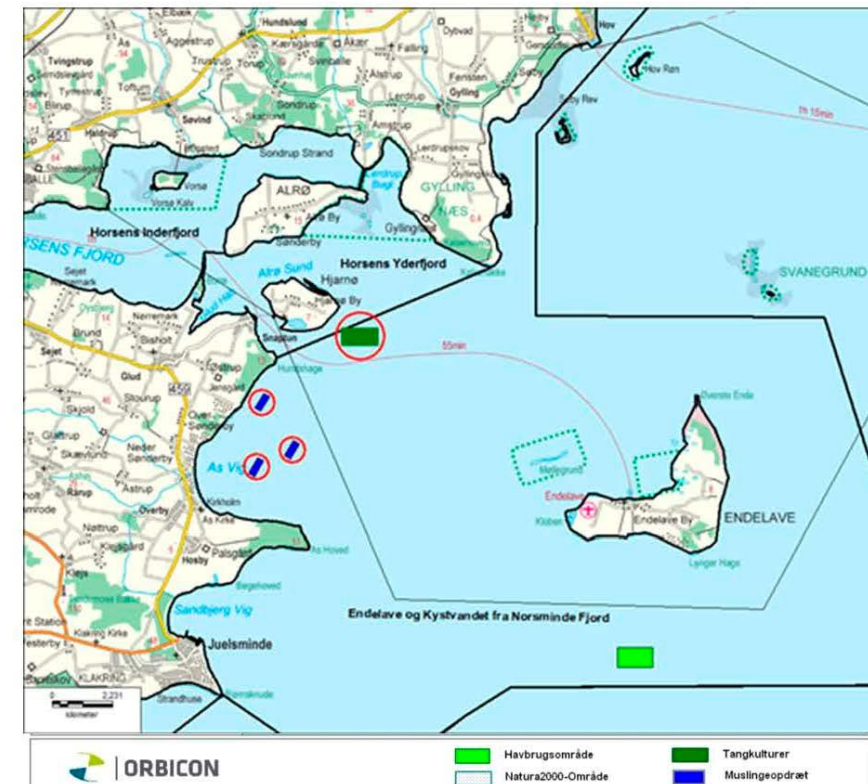
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June 2017: The Environmental law changes.
Order to implement the law - expected primo 2018

April 2018: 37 applications for new seacage farms (more than 4000 t N)

???

Miljøbeskyttelsesloven: § 35 Stk. 3. Miljø- og Fødevareministeren kan fastsætte regler om vilkår om etablering og drift af kompenserende marine virkemidler ved godkendelse af havbrug.



Press release 26. August 2019

Minister for the Environment: I do not want more and larger sea cage aquaculture in Denmark

Concern over the state of the aquatic environment causes the Environment Minister Lea Wermelin to stop the development in the sea cage aquaculture sector. Instead, a sustainable development of the Danish aquaculture sector must be pursued.



Miljøminister: Jeg ønsker ikke flere og større havbrug i Danmark

Bekymring over tilstanden i vandmiljøet får miljøminister Lea Wermelin til at bremse udvidelser af havbrugssektoren. I stedet skal der satses på en bæredygtig udvikling af den danske akvakultursektor.

Publiceret 26. august 2019

Status for new sea cage farms in Kattegat

The 37 applications for new farms – hearing until 18. november.

Use of compensatory measures for sea cage farming - No Order

Mussel-farming will maybe a tool in the next generation af Water-area-plans



Existing sea cage farms

Sea Cage farms - renew permissions 2015 (application marts 2014)

- 2 permissions (not appeal)
- 8 - 10 permissions - appeal from Nature Conservations / Sports anglers

Onsevig Sea cage - principle case

- Permission from the Environmental Protection Agency 2015
- Appeals from the Nature conservation
- Appeal board decision (1.3.2018)
- Court - EU court - Habitat directive

Sea cage – commission . Environmental Protection Agency

Location permits etc.



Thank you for your attention

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