

DTU



Niccolò Vendramin

27th AW of the National Reference Laboratories for Fish Diseases, May 30st 2022

Survey & Diagnosis of fish diseases in 2022



**European Union Reference Laboratory
for Fish and Crustacean Diseases**

NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

Survey & Diagnosis of listed fish diseases in the European Community 2022

An Annual questionnaire

1. **General data:** Number of farms and health status for Cat. C disease / presence of control programs for Cat. E disease
2. **Epidemiological data:** Number of outbreaks and increase/decrease in number of infected farms/severity
3. **Laboratory data, NRL and regional laboratories:** total number samples tested and samples tested positive for each disease
4. **Reports from the individual European countries:** general information on aquaculture production, fish health status, disease challenging production.



Report

- The report was collated in May, and will be to all of you for validation.
- Please check if the information given is correct!



Report on Survey and Diagnosis of Fish Diseases in Europe 2022



DISCLAIMER The EURL for Fish and Crustacean Diseases and the EU commission have no liability for the accuracy of the information and cannot be held liable for any third-party claims or losses of any damages related to this report.

General production data taken from:

FEAP Data [refer to 2021](#)



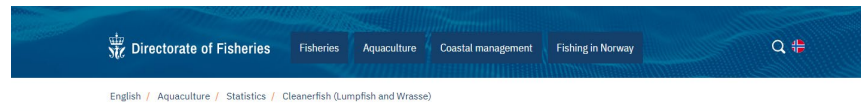
European Aquaculture
Production Report
2015-2021 (V1.1)

Prepared by the FEAP secretariat (31 March 2023)

National reports



Marine Scotland Science
Scottish Fish Farm Production Survey 2021



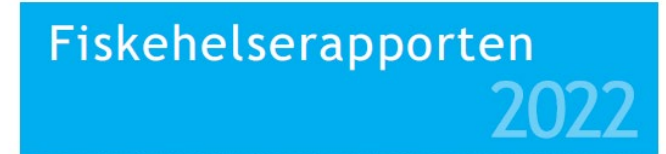
Cleanerfish (Lumpfish and Wrasse)

Cleanerfish is a group of fish consisting of Lumpfish and different species of Wrasse. Cleanerfish is the little fish that eats salmon lice.

Total number of cleanerfish put into cages with Atlantic salmon and rainbow trout (Wild catch and farmed cleanerfish)

Figures are given by fish farmers of Atlantic salmon and rainbow trout, and includes both wild caught and farmed cleanerfish.

[Use of cleanerfish 1998-2022 \(xlsx, 66,0 kB\)](#)



Parasitter og blodlegemer på gjellen til en settefisk forstørret 3100 ganger. Bildet er tatt med skanning elektronmikroskop og fargelagt. Foto: Jannicke Wiik-Nielsen, Veterinærinstituttet

STUDY

Requested by the PECH Committee



Impacts of the COVID-19 pandemic on EU fisheries and aquaculture



Russian invasion of Ukraine

135 languages

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From Wikipedia, the free encyclopedia

This article is about the invasion that began in February 2022. For other invasions, see [List of invasions and occupations of Ukraine](#).

On 24 February 2022, [Russia](#) invaded and occupied parts of [Ukraine](#) in a major escalation of the [Russo-Ukrainian War](#), which had begun in 2014. The [invasion](#) has resulted in tens of thousands of deaths on both sides, and instigated Europe's [largest refugee crisis](#) since [World War II](#). About 8 million Ukrainians were [displaced within their country](#) by June, and more than 8.2 million had [fled the country](#) by May 2023.

For months before the invasion, Russian troops [had been concentrating around Ukraine's borders](#) while Russian officials repeatedly denied plans to attack Ukraine. On 24 February 2022, Russian President [Vladimir Putin](#) announced a "[special military operation](#)" to support the Russian-controlled breakaway republics of [Donetsk](#) and [Luhansk](#), whose [military forces](#) had been fighting Ukraine in the [Donbas conflict](#). He said the goal was to "[demilitarise](#)" and "[denazify](#)" Ukraine. Putin espoused [irredentist](#) views, challenged Ukraine's [right to statehood](#), and [falsely claimed](#) that Ukraine was governed



Impacts of the
COVID-19 pandemic
on EU fisheries
and aquaculture

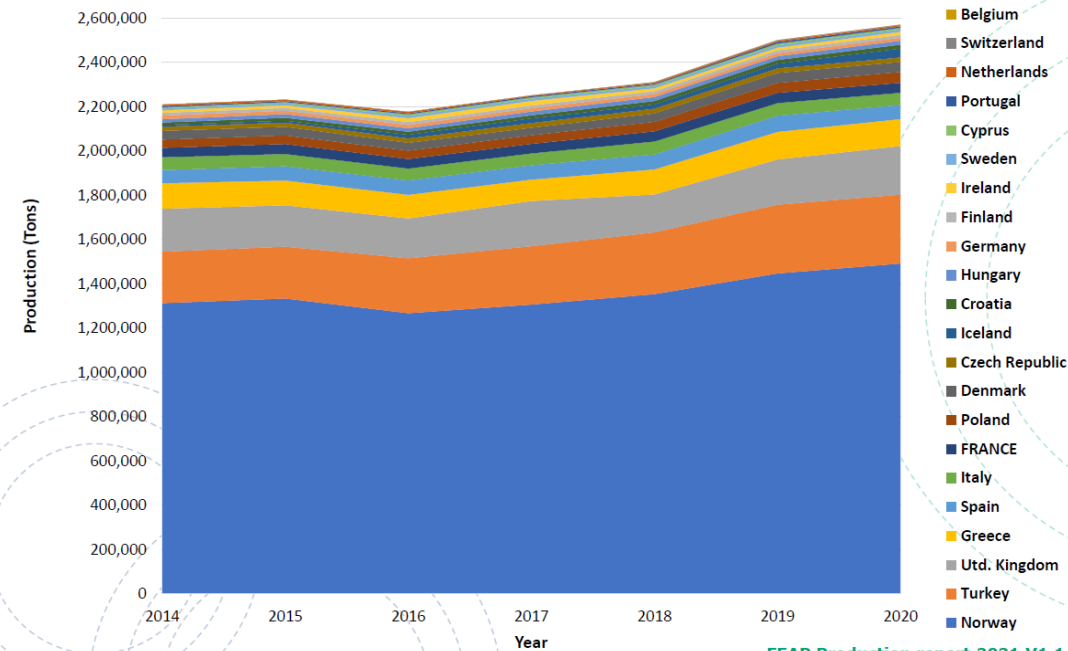
3.2 The impact of the COVID-19 pandemic on aquaculture

Generally speaking, the pattern observed in the aquaculture sector is very similar to that of fisheries: **farmers selling to retail did not experience particularly negative impacts, while farmers selling to HoReCA saw a dramatic fall in sales and profits.** ...Thus the farmers who had sold to HoReCa turned to selling to retail, when possible, or developed direct sales to consumers. However, with both fisheries and aquaculture trying to divert sales from HoReCa to retail, **the market simply could not absorb all the excess production, which meant several aquaculture farmers had to bear even higher losses than fishers.** Indeed, while a fisher can decide to fish less when the demand is low, aquaculture farmers have to keep their produce alive. **Hence, it is believed that those farmers who could not find an alternative market for their product ended up bearing even higher losses.**

It appears from FEAP data that production is recovering and growing after the crisis due to Covid.



Fish Farming Production in Europe

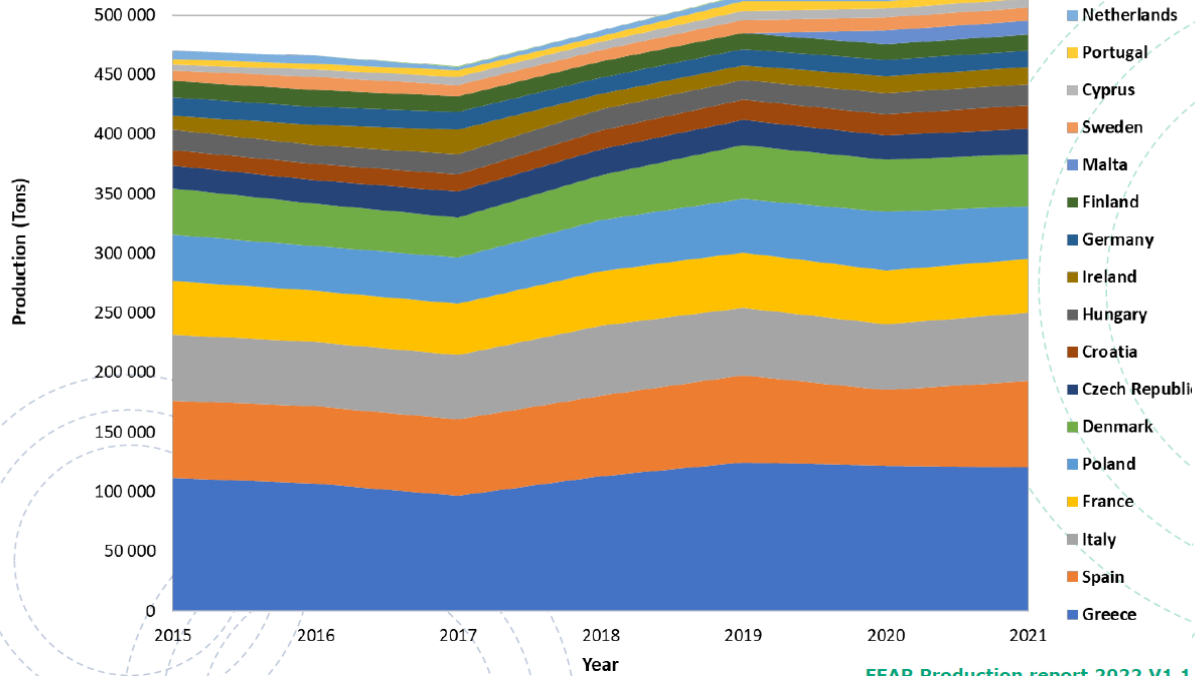


FEAP Production report 2021 V1.1

	2016	2017	2018	2019	2020	2021
Grand Total (tonns) From report 2021	2,177,035	2,251,195	2,311,299	2,500,713	2,581,443	2,875,732



Fish Farming Production in EU countries

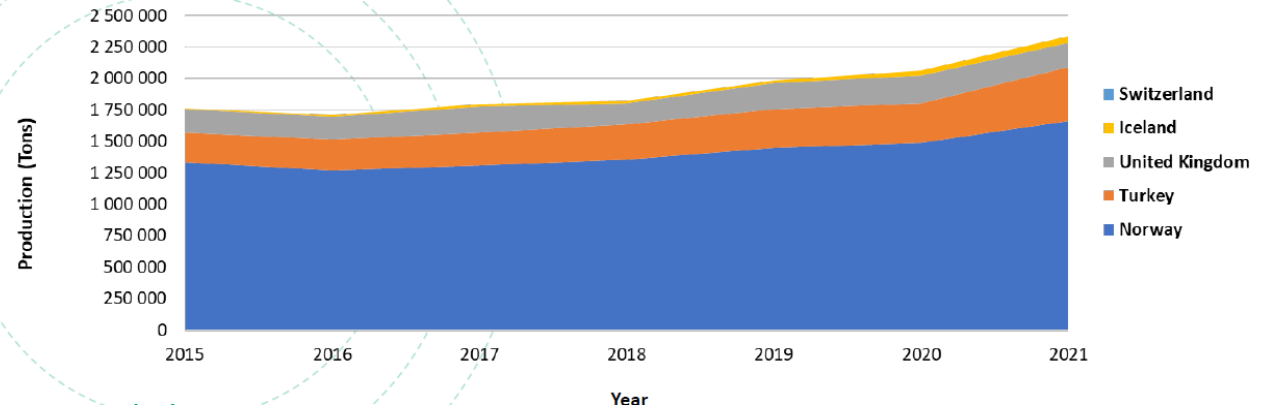


FEAP Production report 2022 V1.1

Fish Farming Production in non-EU countries



Production (Tons)	Year						
	2015	2016	2017	2018	2019	2020	2021
Norway	1,333,994	1,267,751	1,306,603	1,353,730	1,447,291	1,492,000	1,661,574
Turkey	234,000	247,754	263,500	279,000	310,300	310,800	427,800
Utd. Kingdom	186,792	179,887	204,277	171,095	204,119	219,396	193,920
Iceland	8,249	16,700	20,776	19,077	20,594	40,328	52,799
Switzerland	-	-	-	1,913	2,463	2,392	2,442
Grand total	1,763,035	1,712,092	1,795,156	1,824,815	1,984,767	2,064,916	2,338,535



Farmed species of relevance in European aquaculture



Species	2021
AS	1,894,865



Species	2021
Carp	52,244



Species	2021
RT table size	264,409
RT large size	165,602



Species	2021
Sea bass	255,019
Sea bream	236,632

Other species of relevance in European aquaculture

- Salmonids (Arctic charr – **11,148** tons in 2021)
- Sturgeon (**2,430** tons produced in 2021 – approx 165 T of caviar)
- Halibut (**1,870** tons)
- Turbot (**10,789** tons)
- African Catfish (**12867** tons – doubled from 2020)
- Eel (4432 tons)



Figure 1. *Clarias gariepinus* (courtesy of South African Institute for Aquatic Biodiversity Artist: E.M.Tarr)

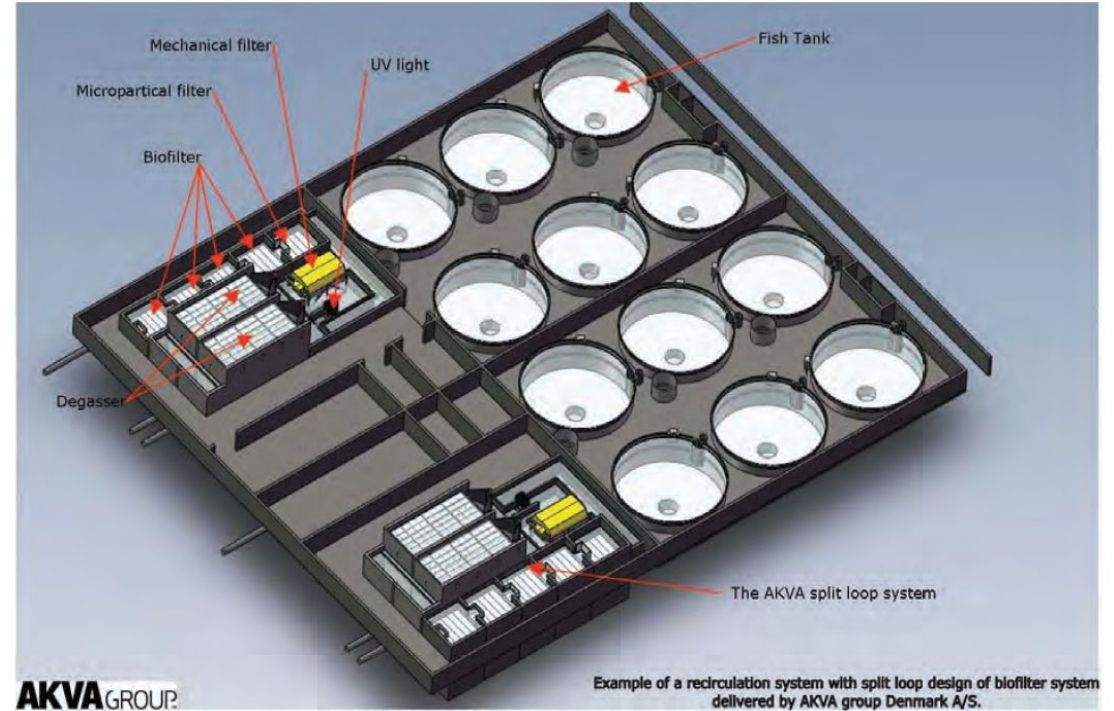
- Cleanerfish for sea lice mitigation (45,5 million of total cleanerfish deployed at sea in Norway (fiskedirektorat))
- 689 K pieces produced in Scotland in 2021



At least 18 countries reports RAS operations



Model 3 – biofilter- Raibow trout production Denmark



- Fully recirculated Aquaculture facility
- Indoor facilities
- High value species or warmwater species

Production of species in RAS



Clarias gariepinus



Stizostedion Luciooperca



Tilapia niloticus



Pangasianodon hypophthalmus



Seriola lalandi



Litopeneus vannamei

With the implementation of the AHL we passed from 5 health categories to 4 health status

2006/88

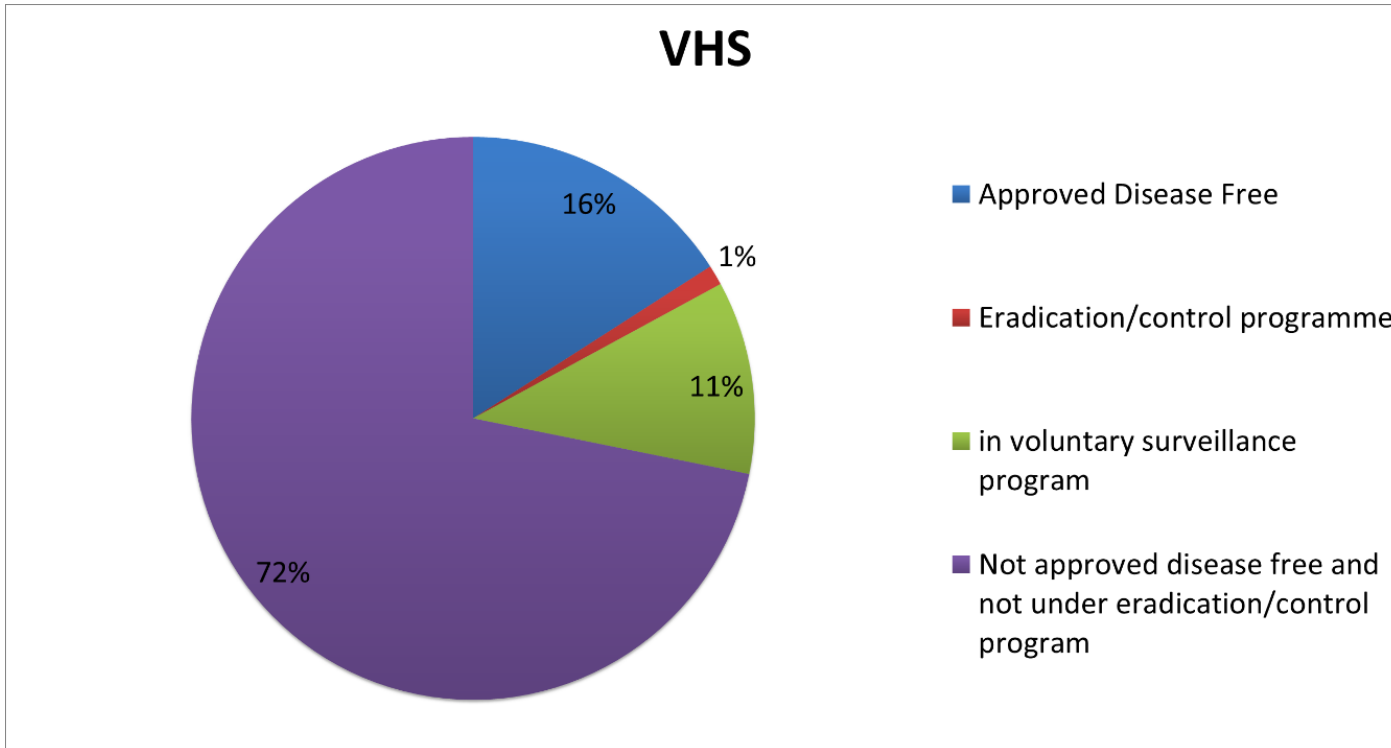
Health Category	Health status	Intro from	Dispatch to
I	Disease free	I	I-V
II	Surveillance programme	I	III+V
III	Undetermined: "Not known to be infected but not subject to eradication programme for achieving disease free status"	I, II & III	III+V
IV	Eradication programme	I	V
V	Infected	I-V	V



2020/689	
Disease free	
Eradication program	6 years max- with possibility for additional 6 years
Farm under surveillance but not in eradication program (will not achieve)	
Notified but Not in program (both infected and non infected)	Possibility for national program

Applies to infection with VHS, IHN, HPR-del ISAV, WSSV and other present or emerging diseases

DTU Distribution of farms in zones and compartments according health status for VHS 14692 farms



Health status for VHS:

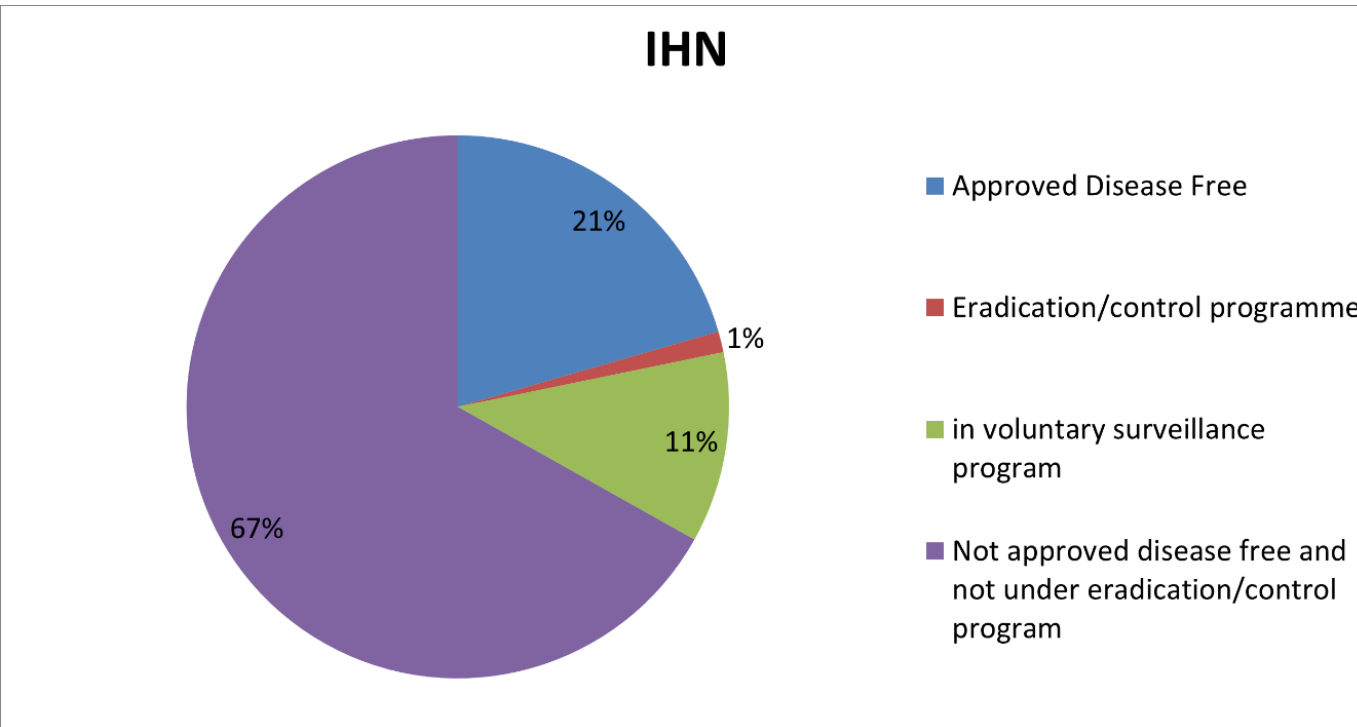
16% of fish farms are approved disease free

2% is under eradication/control program

11% under voluntary program

72% is not approved disease free and not under eradication/control program

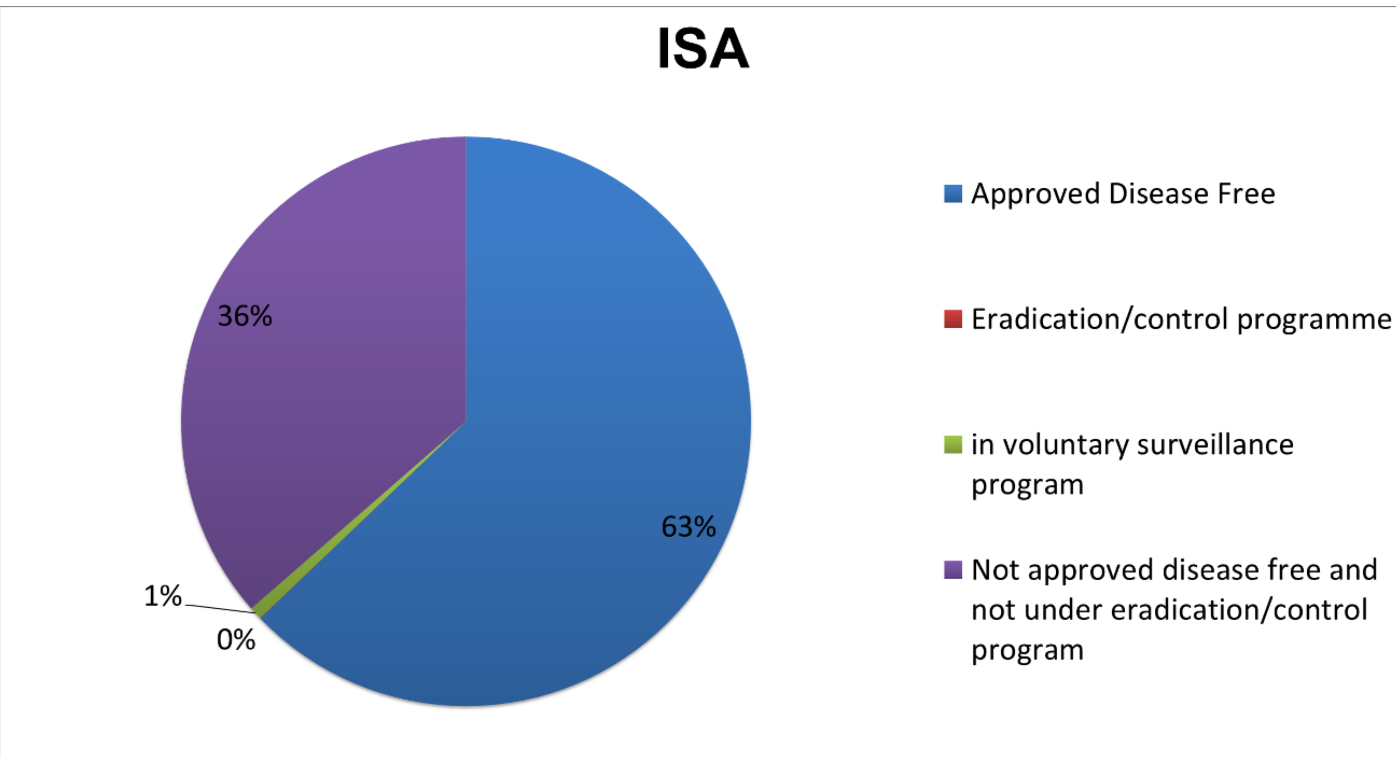
DTU Distribution of farms in zones and compartments according to health status for IHN including 15495 farms



Health status for IHN

- 21% of fish farms are approved disease free
- 1% is under eradication/control program
- 11% under voluntary program
- 67% is not approved disease free and not under eradication/control program

Distribution of farms in zones and compartments according to health status for ISA including 5004 farms with susceptible species



Health status for ISA (Infection with HPRΔ ISAV)

- 66% of fish farms are approved disease free
- 0% is under eradication/control program
- 1% under voluntary program
- 33% is not approved disease free and not under eradication/control program

KHVD is now category E disease - means a listed disease for which there is a need for surveillance within the Union

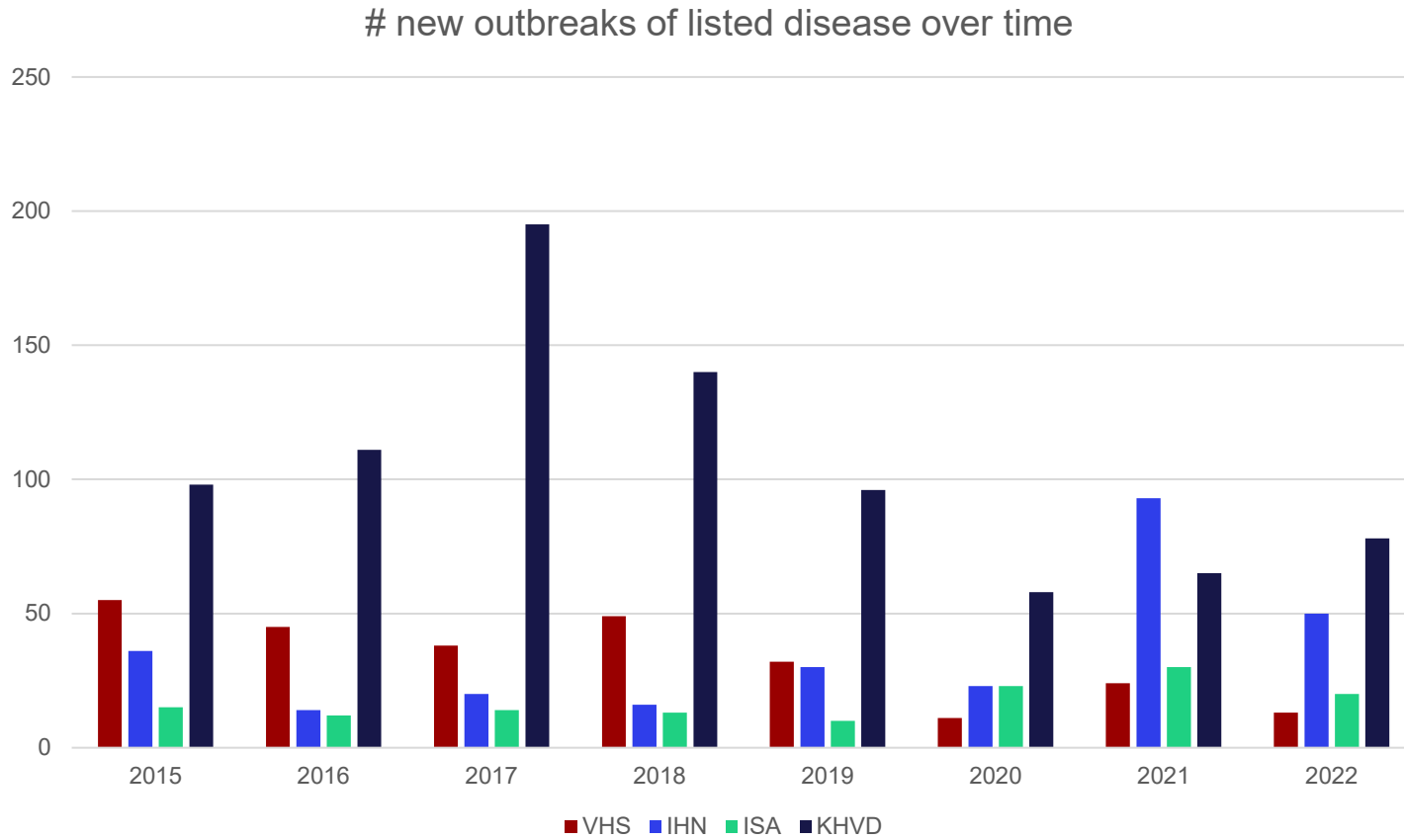
Are there control programs for the Cat. E disease KHVD ? (Y/N)

If yes, please specify how the program is implemented

KHVD is now category E disease - means a listed disease for which there is a need for surveillance within the Union

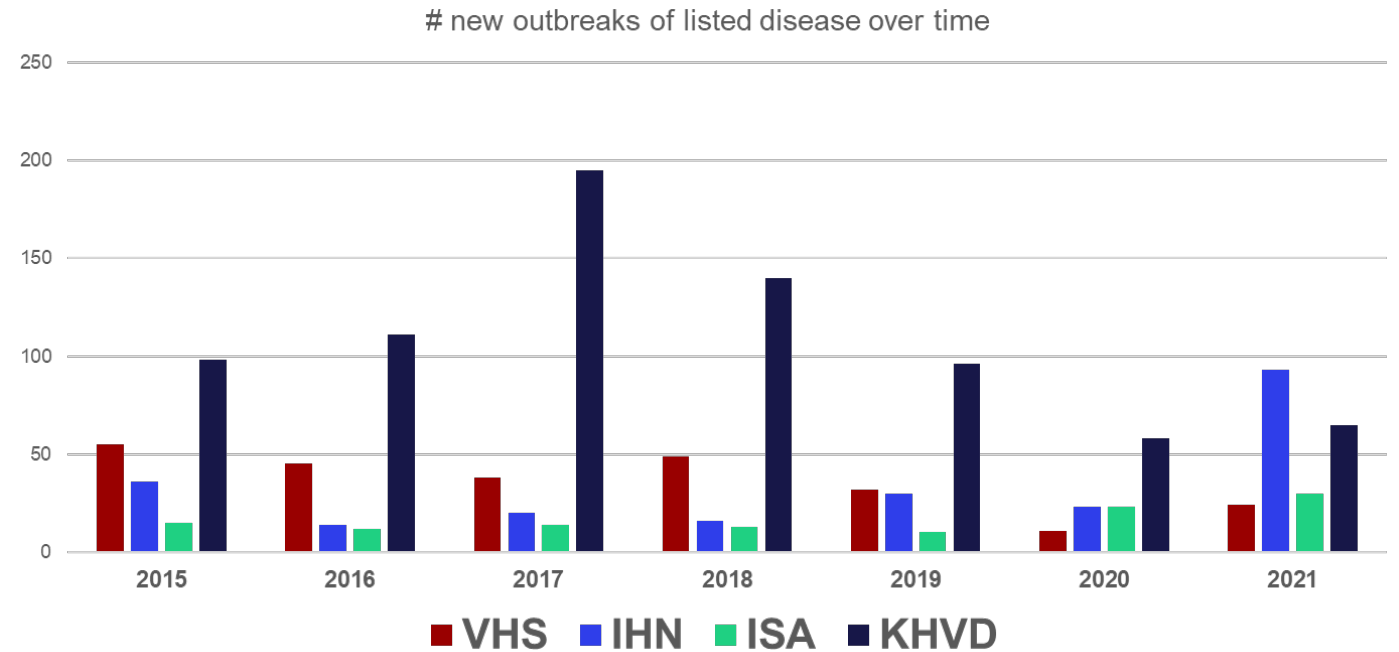
- 10 countries reported an active control program for KHVD
- This largely imply targeted surveillance of farm with susceptible species
- One MS has status of Free from KHVD
- Presence of compartments with freedom status (Italy sud Tirol, Germany voluntary Lower saxony,)

Reported outbreaks of listed disease



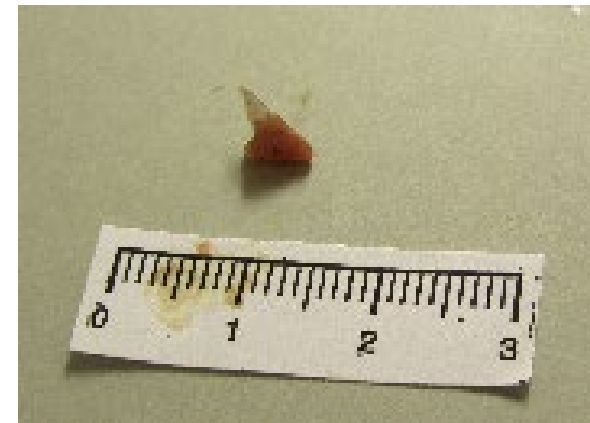
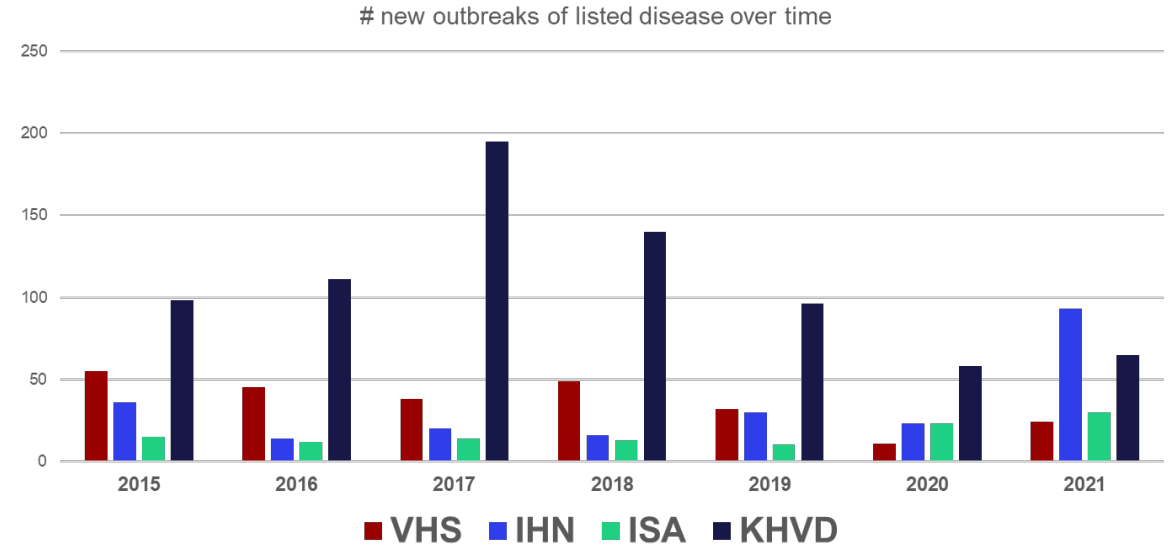
Disease outbreaks - VHS

- 13 outbreaks reported in 2021
 - 6 reported in Germany ; situation varies depending on the Lander
 - 3 in Romania
 - 2 in Austria
 - 1 Switzerland and 1 in Poland



Disease outbreaks - IHN

- 50 outbreaks reported (104 reported in 2021)
- 19 in Denmark
- 16 in Germany
- 6 in the Netherlands
- 3 in Slovenia
- 2 in France, Poland
- 30 Rep. Of north macedonia
- sequences from other european countries.



- IHN situation will be extensively addressed during the workshop

4 Presentation today (Denmark, Finland, Croatia, European overview on phylogeny)

1 (from the EURL) tomorrow

- From French NRL " Two outbreaks of IHN were detected, the first one following the observation of increasing mortality in a rainbow trout farm. Sequencing of partial G gene showed a high identity level (99.6%) between the present isolate and a virus detected only by molecular methods in the same farm in 2020. In the early spring 2022, blood sampling had been performed on several batches of rainbow trout from this farm and enabled to put in evidence a significative seropositive rate for at least one batch of fish (23% of seropositive fish).
- The second outbreak of IHN was reported following sampling performed for the national eradication plan ; no clinical signs had been observed before. The partial G gene sequencing revealed a sequence quite different from other IHNV previously isolated in the area and only 97% of maximum identity with published



DTU Disease outbreaks - ISA

- 20 outbreaks reported in Norway.
- Decrease increase Number of outbreaks in Norway since 2020.
- Outbreak from Iceland was stamped out – update?
- Follow up presentations from NRL of Norway later in the session



Disease outbreaks - KHV

- 48 outbreak reported
- Category E disease .



Pics from CEFAS
Gov.uk



NON listed reported issues - highlights

- Gill issues
- P. salmonis
- Heart pathologies (HSMI-CMS)



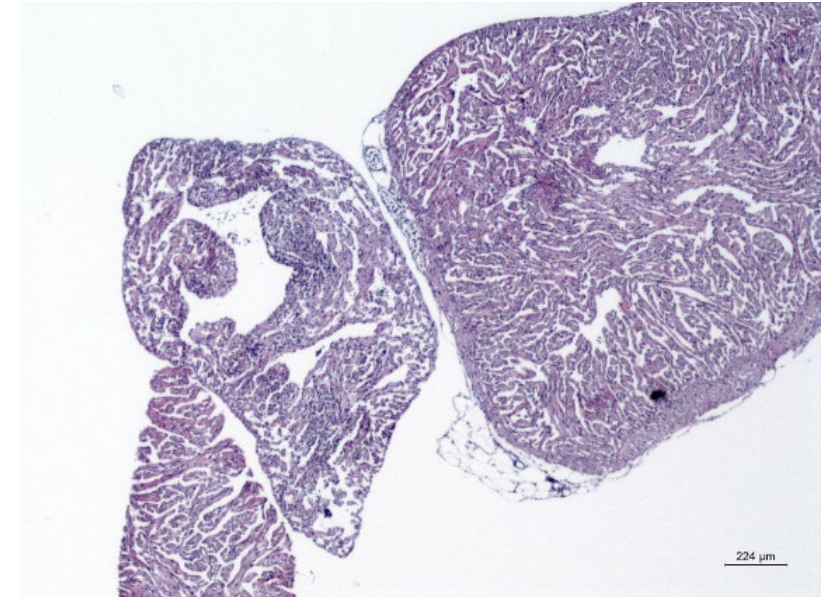
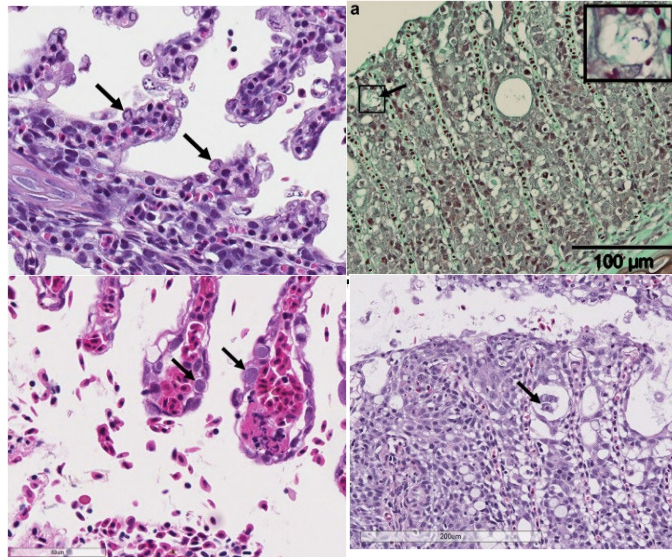
TRINATION

Other fish diseases problems in Europe

Atlantic salmon



- **AGD amoebic gill disease** and **CGD complex gill diseases** (amoebic gill disease, salmon gill poxvirus, *Paranucleospora theridion* etc..)
- P.salmonis infection (Ireland)
- Heart pathologies
- PD update (reduction?)



CMS histopath –
Iburg unpubl.

DTU Other fish diseases problems in Europe

seabass and seabream

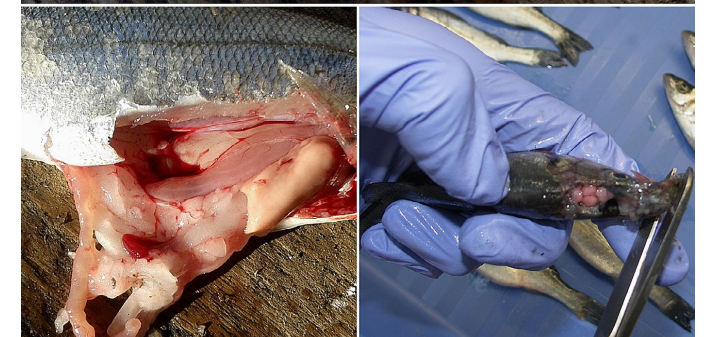
- In **seabass** and **seabream** :
- Diminished reports of VNN/VER



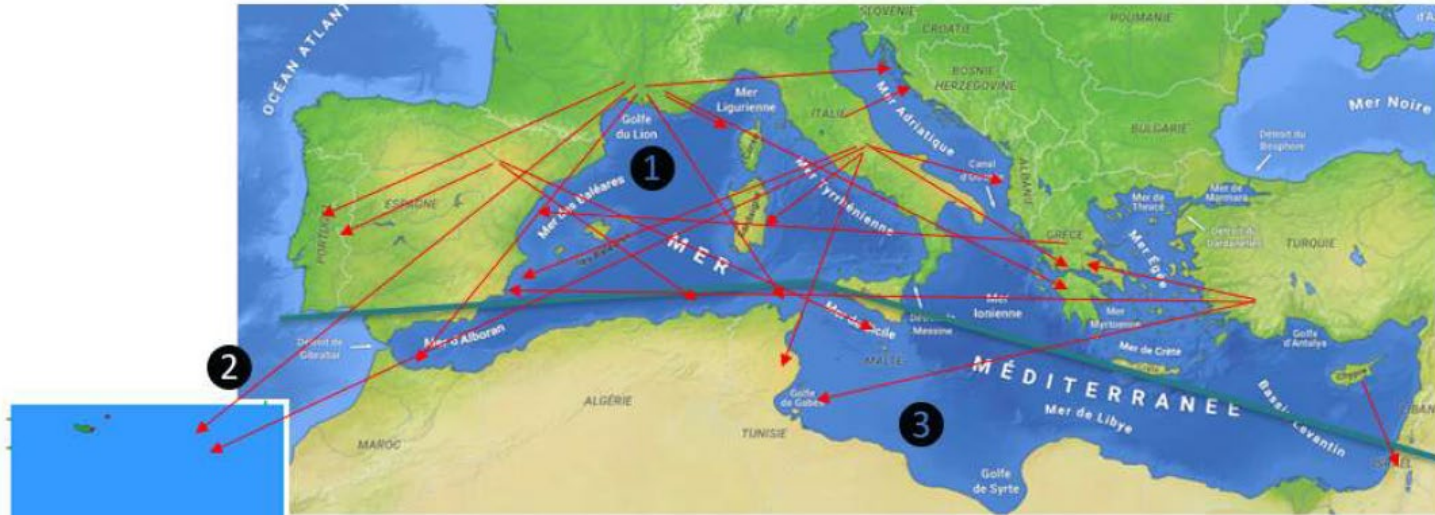
- Outbreaks of *Aeromonas Veronii* in sea cages
- *Sparicotyle* sp. in Gilthead sea bream



- *Vibrio harveyi* infection in Sea bass reported as relevant in Italy and Croatia
- *Piscirickettsia* in Sea bass in winter



From Alain le Breton – Selarl Veteau



Iles Canaries
Madère

Implications sanitaires / Biosécurité

bactéries	<i>Vibrio anguillarum</i>	
	<i>Vibrio harveyi</i> / <i>alginoliticus</i>	
	<i>Photobacterium damsela piscicida</i>	
	<i>Photobacterium damsela damsela</i>	
	<i>Tenacibaculum maritimum</i> / <i>discolor</i>	
	<i>Tenacibaculum solea</i>	
	<i>Aeromonas salmonicida</i>	
virus	<i>Nocardia</i> spp.	
	<i>Nodavirus</i> RGNNV	
	<i>Nodavirus</i> RGNNV/SJNNV recombinant	
parasites	Lymphocystis	
	<i>Microcotyle pancerii</i>	
	<i>Diplectanum aequans</i>	
	<i>Sparicotyle chrysophrii</i>	
	<i>Enteromyxum leei</i>	
	<i>Sphaerospora intestinalis</i>	
	<i>Enterospora nucleophila</i>	
	<i>Cryptocarium irritans</i>	
	<i>Amyloodinium ocellatum</i>	
	<i>Lernanthropus kroyeri</i>	
<i>Ceratomyxa oestroides</i>		

Conclusion on S&D 2022

- **Production in EUROPE –some reduction in EU – increased in associated countries**
- **Impact of COVID-19 pandemics – recovery of production**
- **IHN under development**
- **20 ISA outbreaks in Norway + re-occurrence in Iceland – situation in development**
- **Putative re-emergence of non listed pathogens (P.salmonis) in two species (A.salmon and Seabass).**

**Thank you for all the significant work,
efforts and time used for compiling
these data!!**

And please use the report!

Thank you for
your attention!

