

DTU



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*26<sup>th</sup> AW of the National Reference Laboratories for Fish Diseases, May 31<sup>st</sup> 2021*

# Survey & Diagnosis of fish diseases in 2021



**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 Europe 2021

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 is collated, will be submitted to all of you for validation.
- Please check if the information given is correct!



## Report on Survey and Diagnosis of Fish Diseases in Europe 2021



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 updated are (still) refer to 2020 (envisage to use also FishstatJ in future)



# Additional relevant sources

National reports



Munnen til en lakselus forstørret 300 ganger. Bildet er tatt med skanning elektronmikroskop og fargelagt.  
Foto: Jannicke Wiik-Nielsen



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

## Marine Scotland Science

Scottish Fish Farm Production Survey 2020

## 3.2 The impact of the COVID-19 pandemic on aquaculture

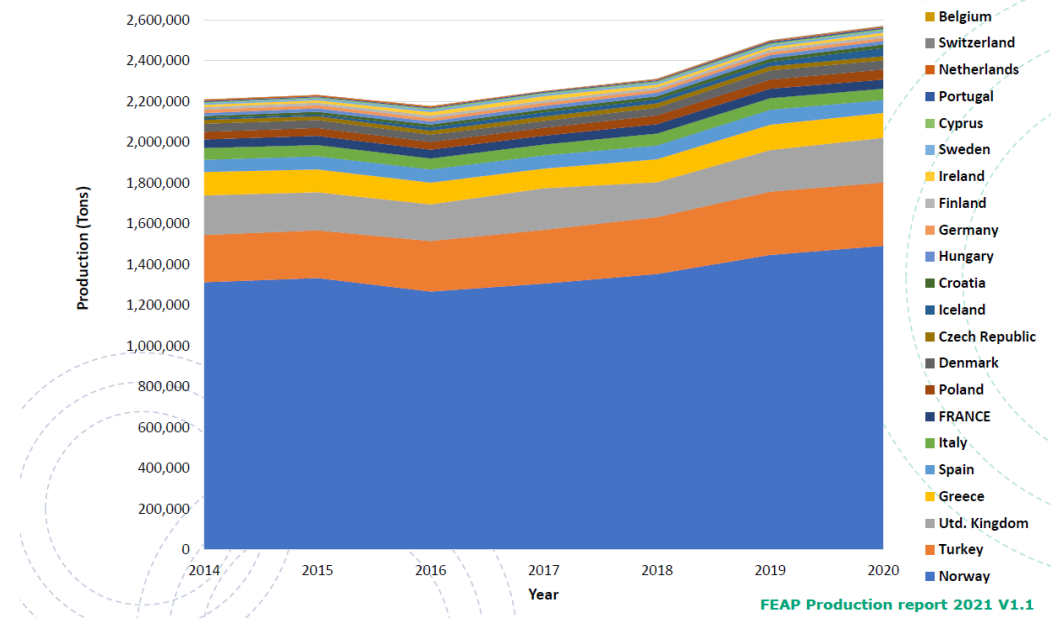
Generally speaking, the pattern observed in the aquaculture sector is very similar to that of fisheries: **farmers selling to retail did not experience particularly negative impacts, while farmers selling to HoReCA saw a dramatic fall in sales and profits.** ...Thus the farmers who had sold to HoReCa 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.**

**At the time of writing, there are not yet sufficient data to estimate the impact of COVID-19 on aquaculture, although some initial estimates point to a 17 % reduction in sales volume and an 18 % reduction in total income, with a particularly harsh impact on the shellfish segment 290.**



# Fish Farming Production in Europe

## Fish Farming Production in Europe



FEAP Production report 2021 V1.1

	2015	2016	2017	2018	2019	2020
Grand Total (tonns) From report 2021	2,231,948	2,177,035	2,251,195	2,311,299	2,500,713	2,570,650
Grand Total (tonns) (from previous report)	2,302,469	2,264,000	2,339,717	2,390,302	2,574,333	



# Farmed species of relevance in European aquaculture



Species	2020
AS	1,801,388



Species	2020
Carp	58,815



Species	2020
RT table size	228,881
RT large size	176,158



Species	2020
Sea bass	189,023
Sea bream	208,021

# Other species of relevance in European aquaculture

- Salmonids (Arctic charr – **7,902** tons in 2020)
- Sturgeon (**176** tons of caviar produced in 2020)
- Halibut (**1,570** tons)
- Turbot (**10,940** tons)
- African Catfish (6849 tons)
- Eel ( 4533 tons)

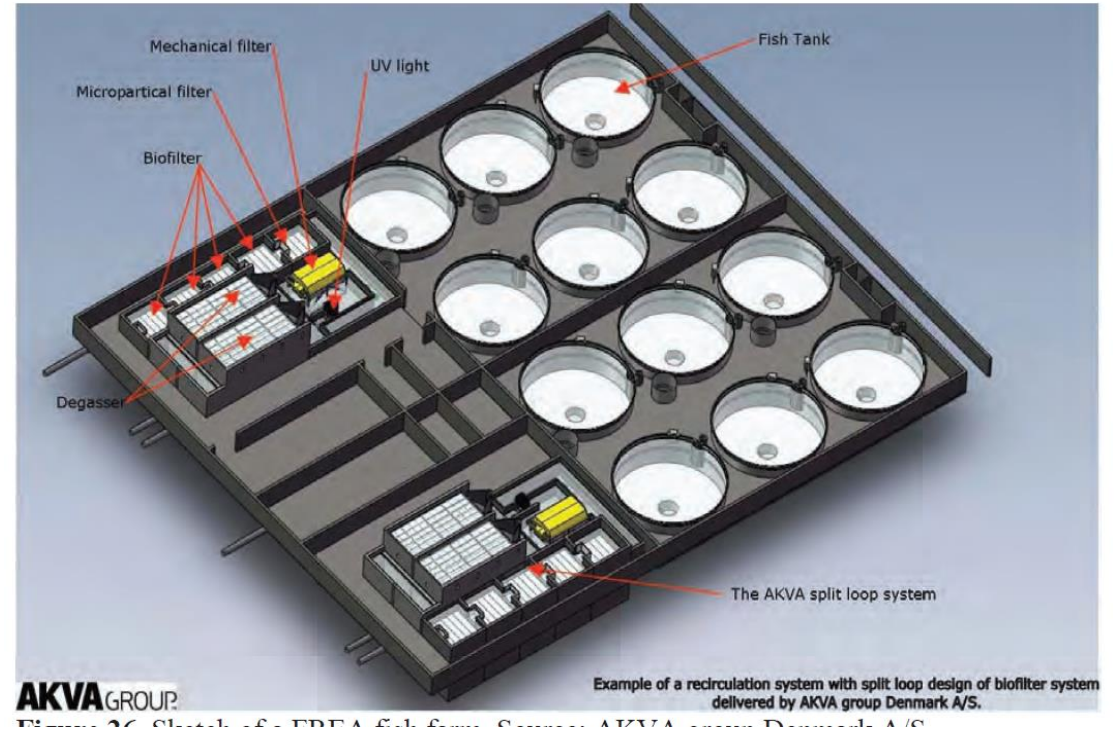


- Cleanerfish for sea lice mitigation (51,5 million of total cleanerfish deployed at sea in Norway (fiskedirektorat) )
- 15 million pieces produced in Scotland in 2020
- Outbreak of Lumpfish Flavivirus in UK – Richard Paley – NRL England

# New systems in aquaculture



Model 3 – biofilter- Raibow trout production Denmark



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

**At least 18 countries reports RAS operations**

# Production of species in RAS



*Clarias gariepinus*



*Stizostedion Lucioperca*



*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

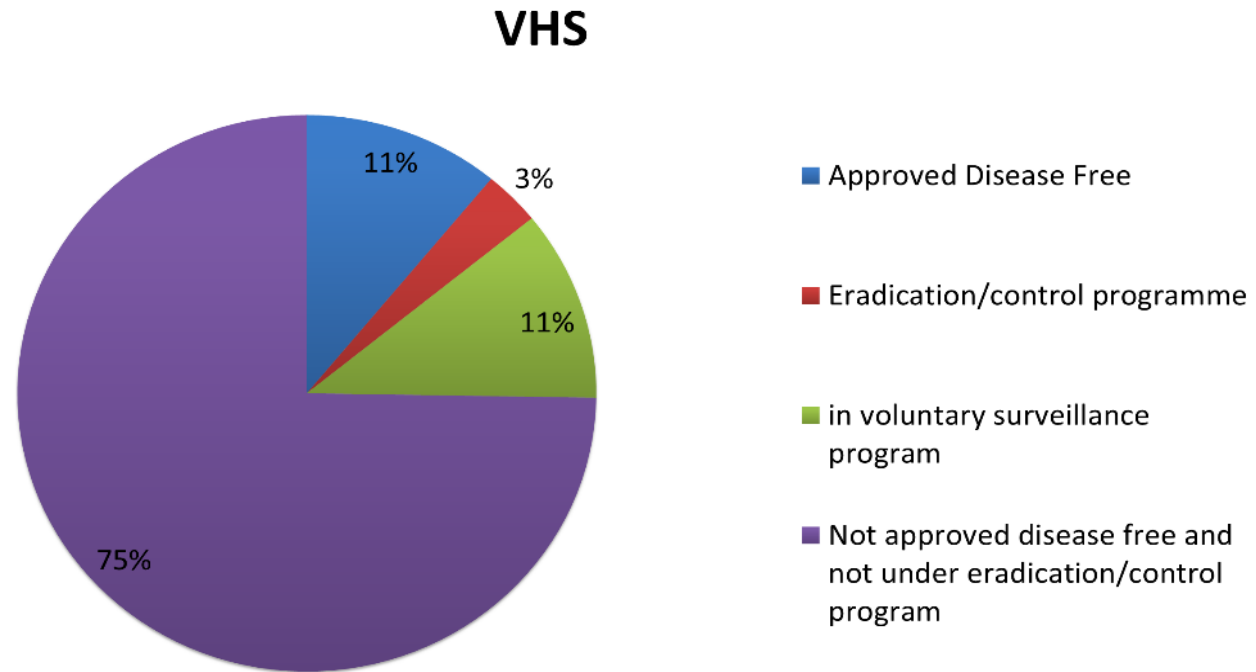
Health Category	Health status	Intro from	Dispatch to
I	Disease free	I	I-V
II	Surveillance programme	I	III+V
III	Undetermined: "Not known to be infected but not subject to eradication programme for achieving disease free status"	I, II & III	III+V
IV	Eradication programme	I	V
V	Infected	I-V	V



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

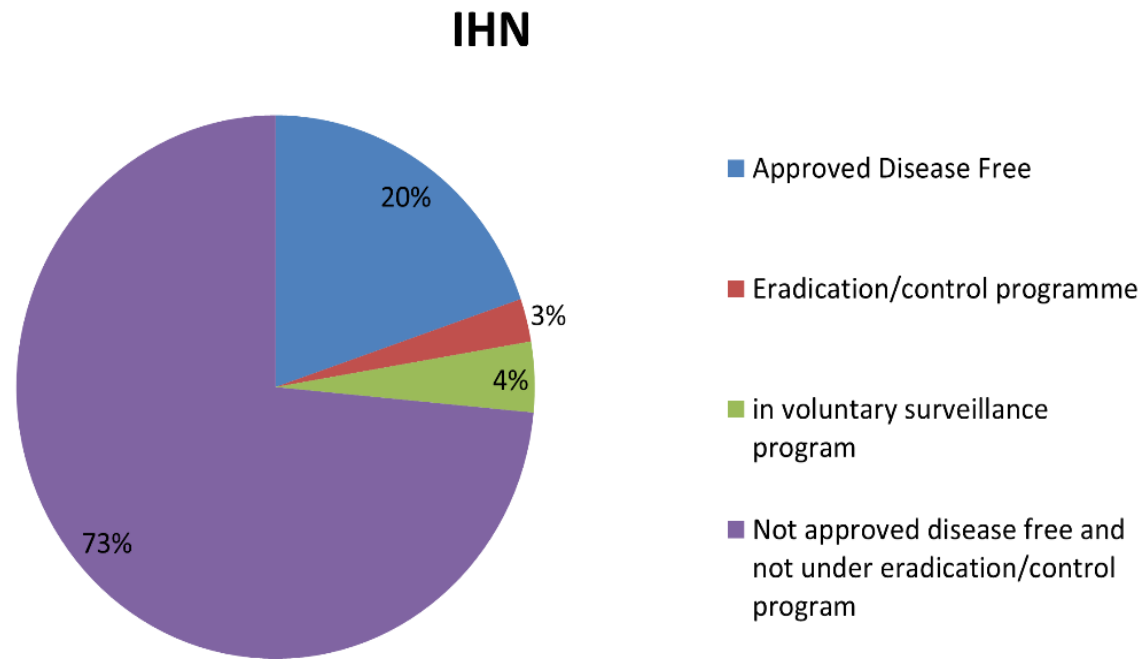
# DTU Distribution of farms in zones and compartments according health status for VHS 13823 farms



## Health status for VHS:

- 11% of fish farms are approved disease free
- 3% is under eradication/control program
- 11% under voluntary program
- 75% is not approved disease free and not under eradication/control program

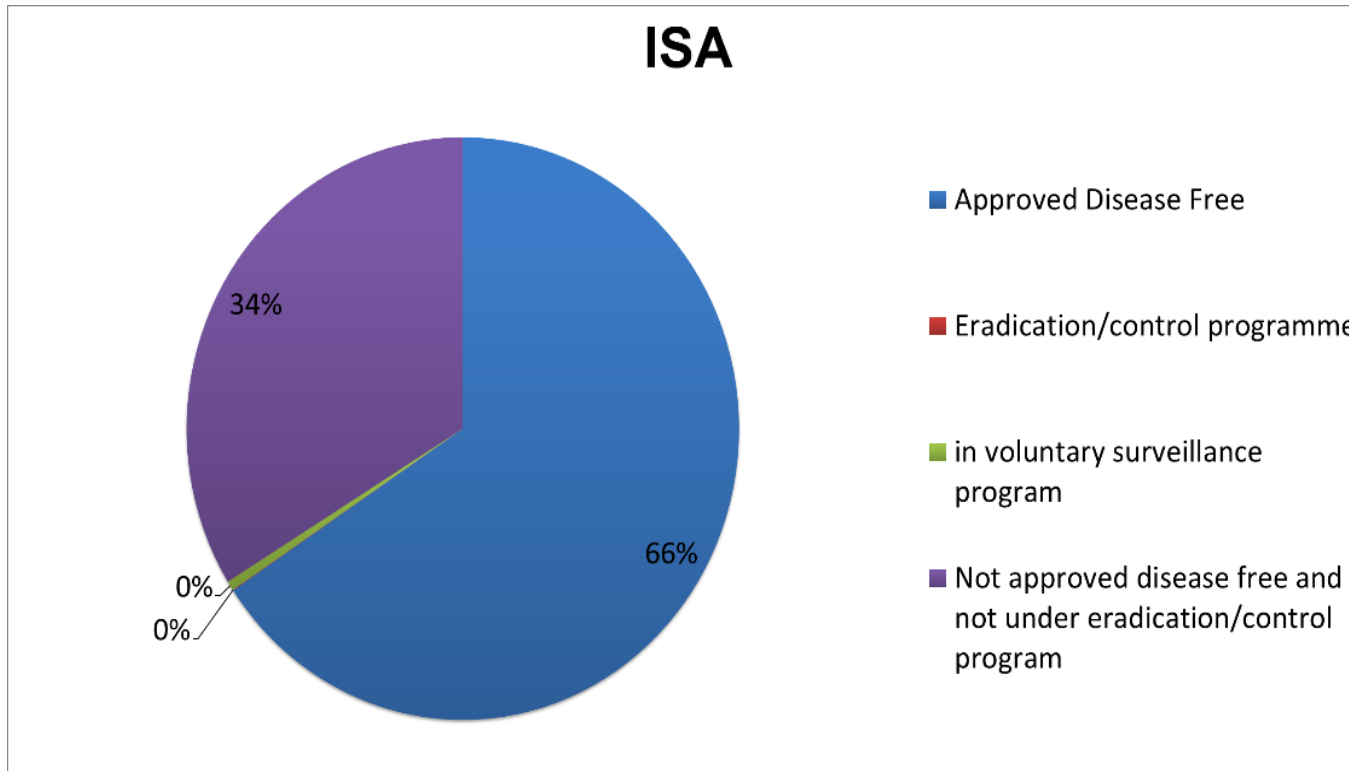
# DTU Distribution of farms in zones and compartments according to health status for IHN including 13746 farms



## Health status for IHN

- 20% of fish farms are approved disease free
- 3% is under eradication/control program
- 4% under voluntary program
- 73% 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 5715 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
- 0% under voluntary program
- 34% 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)**

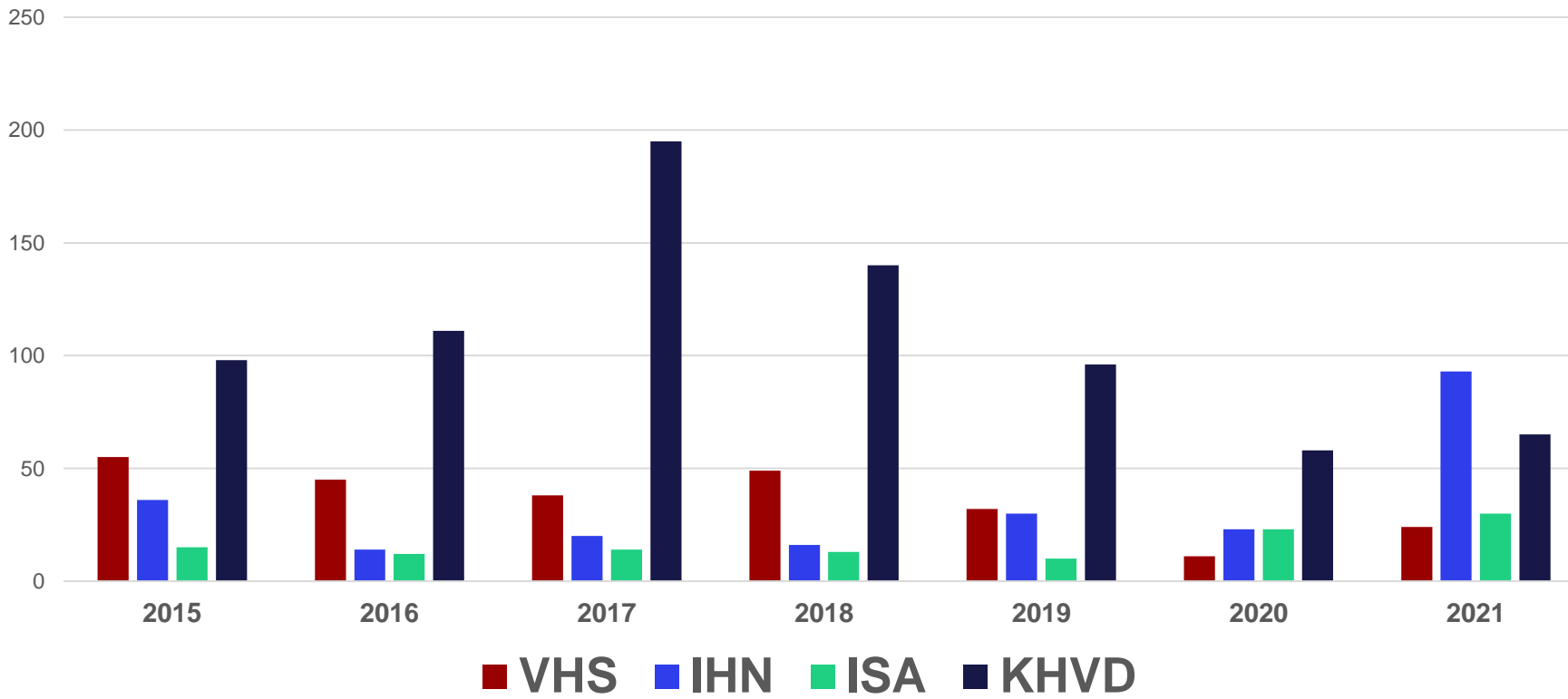
**If yes, please specify how the program is implemented**

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

- 12 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

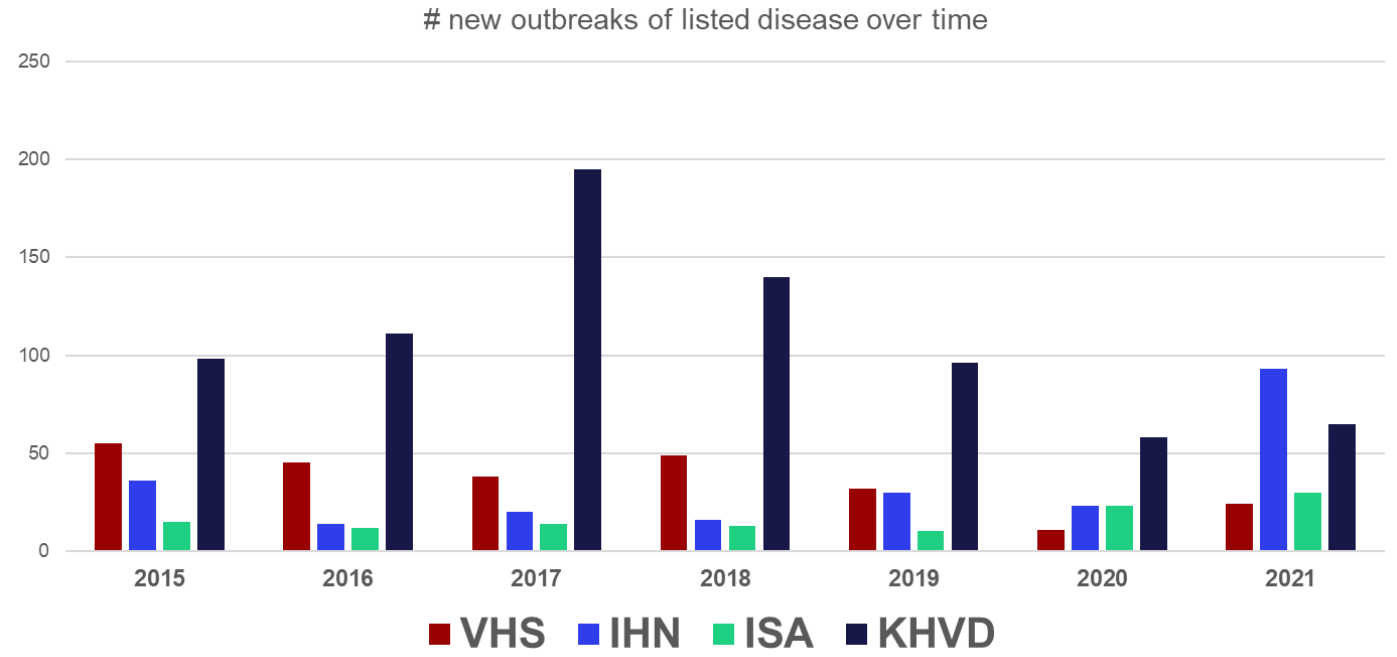
# Reported outbreaks of listed disease

# new outbreaks of listed disease over time



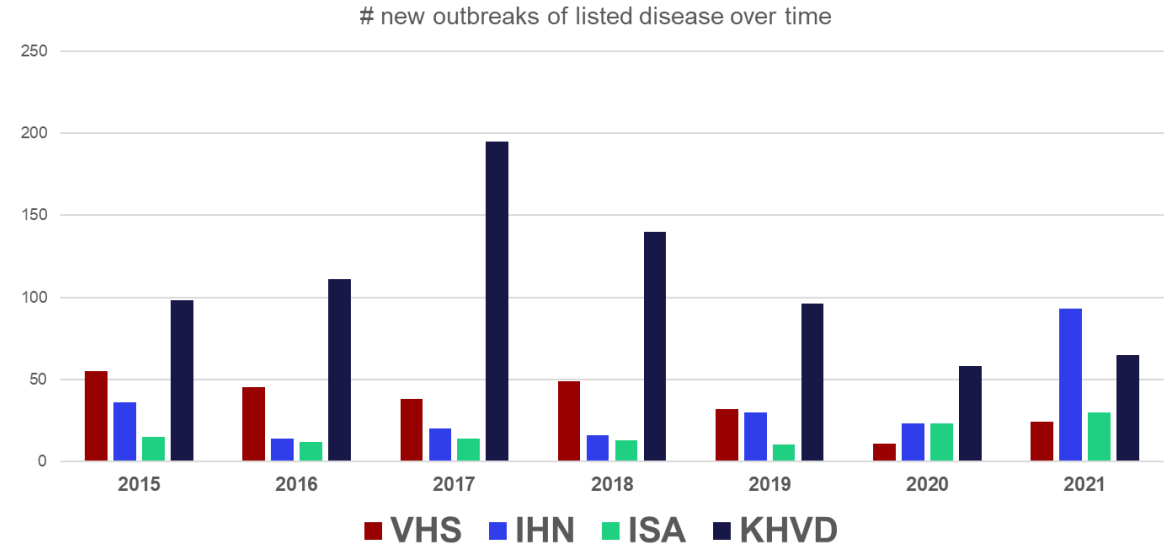
# Disease outbreaks - VHS

- 24 outbreaks reported in 2021
  - 15 reported in Germany ; situation varies depending on the Lander
  - 3 in Italy
  - 2 Czech Republic
  - 1 Austria, Belgium, France, Romania (see presentation from Mihaela Costea IDAHO)

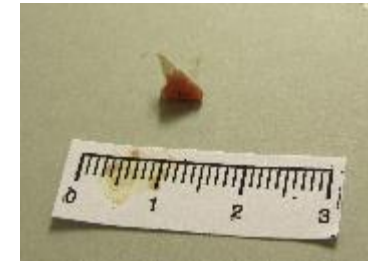


# Disease outbreaks - IHN

- 104 outbreaks reported (24 reported in 2020!!!!)
- 82 in Germany
- 11 in Denmark (8 farms and 3 put and take lakes)
- 5 in Finland
- 4 in Austria
- 1 in Italy

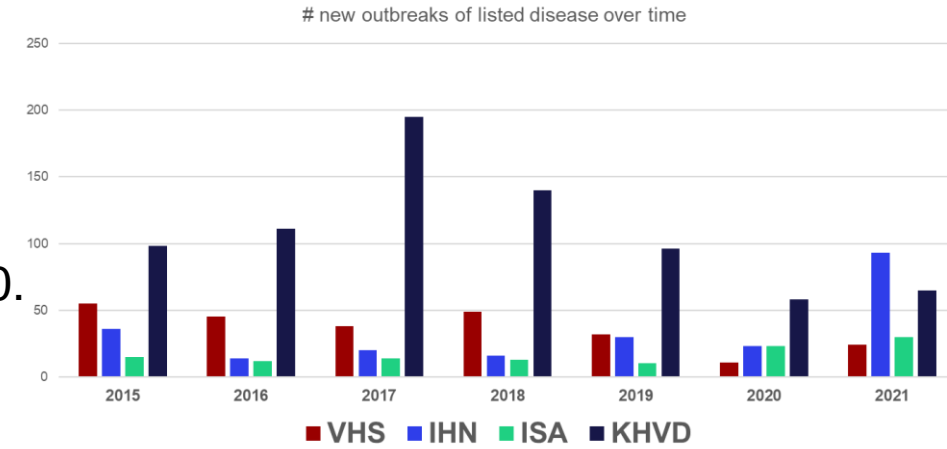


- IHN situation will be extensively addressed during the workshop
- From French NRL " To notice that since 2020, French laboratories have begun to perform VHS and IHN diagnosis by real-time RT-PCR as official methods recognized by the ministry of agriculture. One positive of detection of IHNV with late Cts was reported in 2021, corresponding to sampling on asymptomatic fish. Homogenates were sent to NRL for confirmation which remained unsuccessful (no isolation neither confirmation by conventional RT-PCR for sequencing). In that case, the involved farm was not declared infected. "



# DTU Disease outbreaks - ISA

- 30 outbreaks reported in Norway.
- Slight increase Number of outbreaks increased in Norway since 2020.
- 1st outbreak (already eradicated in Iceland)
- Follow up presentations from NRL of Norway and Iceland later in the session



# Disease outbreaks - KHV

- 65 outbreak reported
- Category E disease .



Pics from CEFAS  
Gov.uk



# NON listed reported issues - highlights

- Gill issues
- *P. salmonis*
- Mycobacteria in med fish
- IPNV

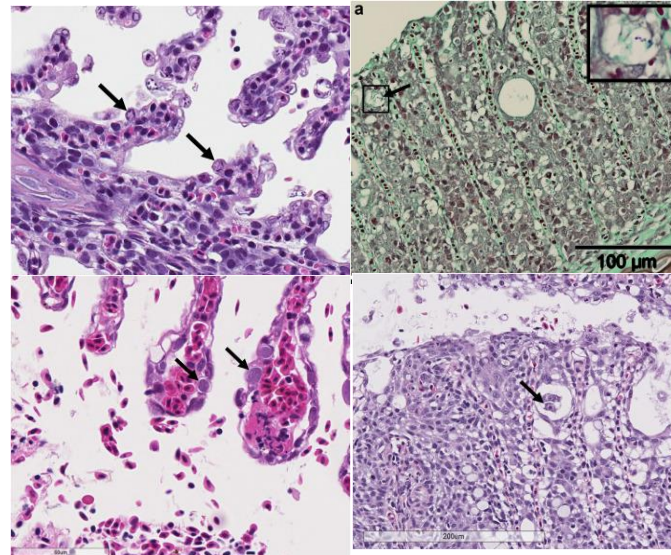


# Other fish diseases problems in Europe

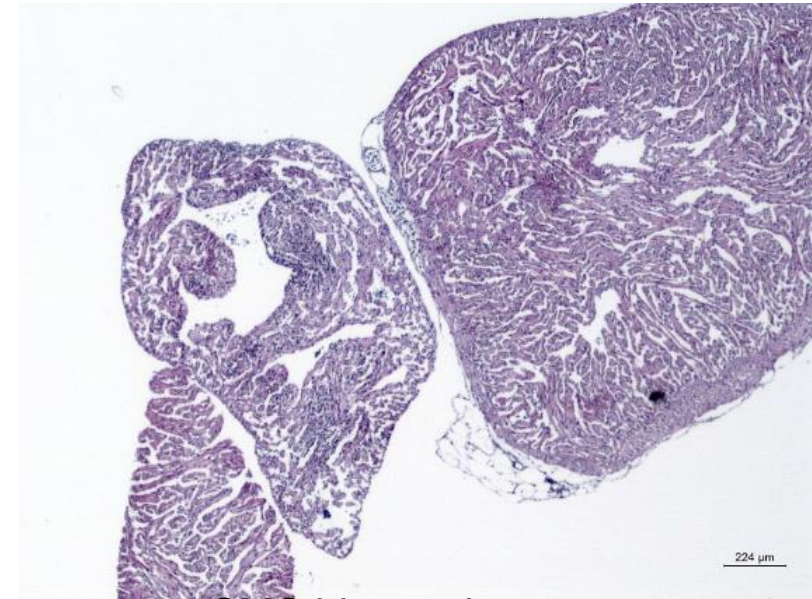
## *Atlantic salmon*



- **AGD amoebic gill disease** and **CGD complex gill diseases** (amoebic gill disease, salmon gill poxvirus, *Paranucleospora theridion* etc..)
- CMS
- *P. salmonis* infection



Herrero et al.,2018



CMS histopath –  
Iburg unpubl.

# IPN in Rainbow trout - Finland



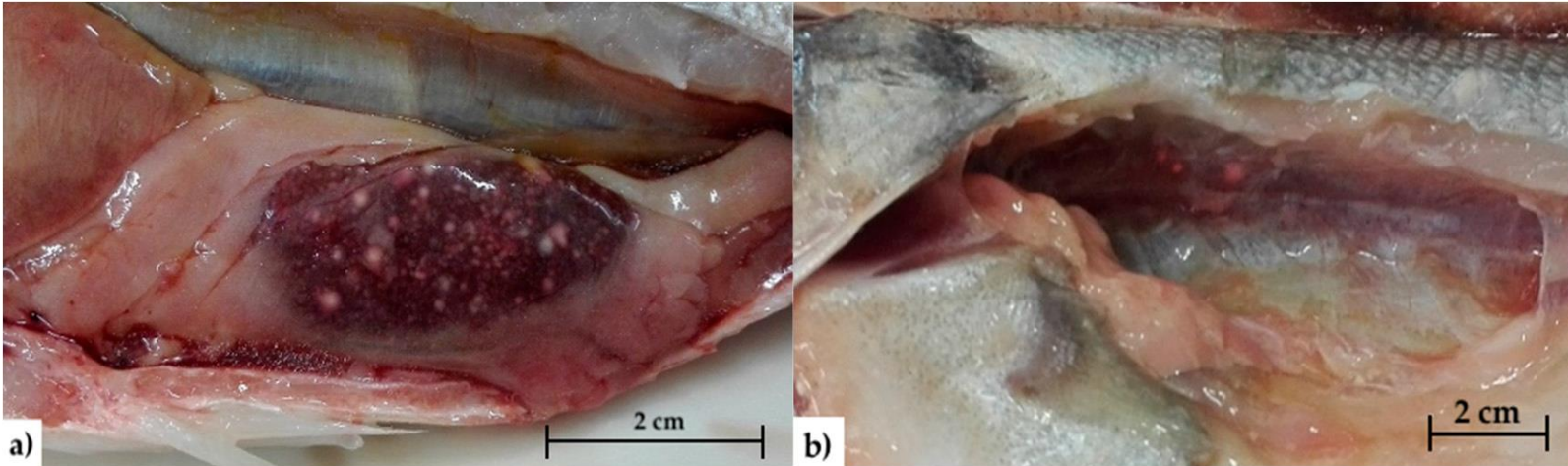
- From Finland

IPN genogroup 2 widely spread in many inland watersheds. May increase mortality, when in combination with bacteria (especially with flavobacteria).

- See presentation from Sweden in IPNV genogroup 6 virulence in wild salmonids

Article

# *Mycobacterium pseudoshottsii* in Mediterranean Fish Farms: New Trouble for European Aquaculture?



# Other fish diseases problems in Europe seabass and seabream

- In **seabass** and **seabream** it is primarily VNN/VER (outbreak recorded in Cyprus),, Tenacibaculosis.



- *Sparicotyle* sp. in Gilthead sea bream



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



# Conclusion on S&D 2021

- **Production in EUROPE –some reduction in EU – increased in associated countries**
- **Impact of COVID-19 pandemics**
- **Steep increase in number of IHN outbreaks**
- **30 ISA outbreaks in Norway – situation in development**
- **Putative re-emergence of non listed pathogens (P.salmonis) and emergence of new pathogens (mycobacteria report)**

**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!

