



**European Union Reference Laboratory for Fish Diseases**

National Veterinary Institute, Technical University of Denmark, Copenhagen



# Survey & Diagnosis of fish diseases in 2016

**Niels Jørgen Olesen, Niccolò Vendramin**

***21<sup>th</sup> Annual Workshop***

*of the National Reference Laboratories for Fish Diseases  
Copenhagen, Denmark, May 30<sup>th</sup> – 31<sup>st</sup> 2017*

# Survey & Diagnosis of listed fish diseases in the European Community 2016

2

An Annual questionnaire



1. **General data:** Number of farms and categorization
2. **Epidemiological data:** Number of outbreaks and increase/decrease in number of infected/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:** Only changes from 2015 included

## Report

The report was collated in May, and is now uploaded on [www.eurl-fish.eu](http://www.eurl-fish.eu)

Can be found in your folder under part 8

### Report on Survey and Diagnosis of Fish Diseases in Europe 2016



# General production data taken from



Prepared by the FEAP secretariat (October 2016)  
contact: FEAP Secretariat - [secretariat@feap.info](mailto:secretariat@feap.info)

(FIGIS data)

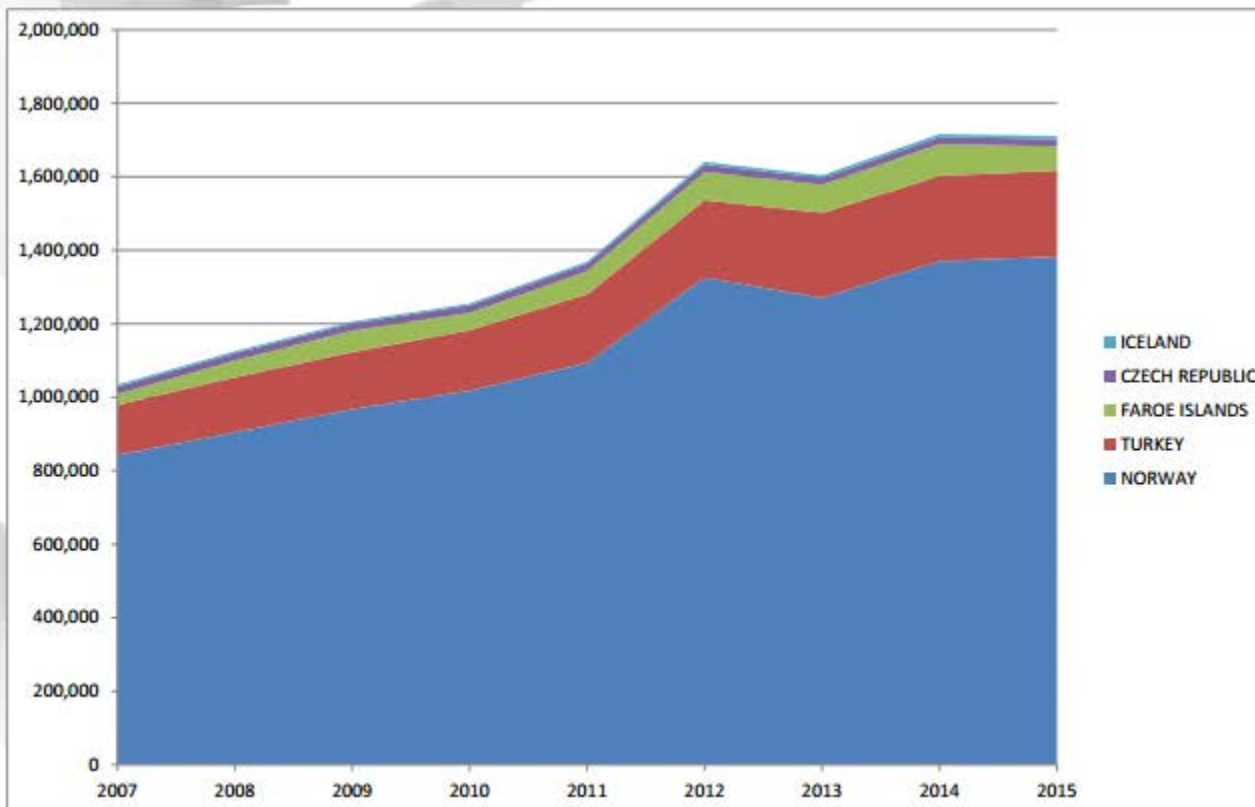
Contact Marlene Dehasque  
([marleen@feap.info](mailto:marleen@feap.info))





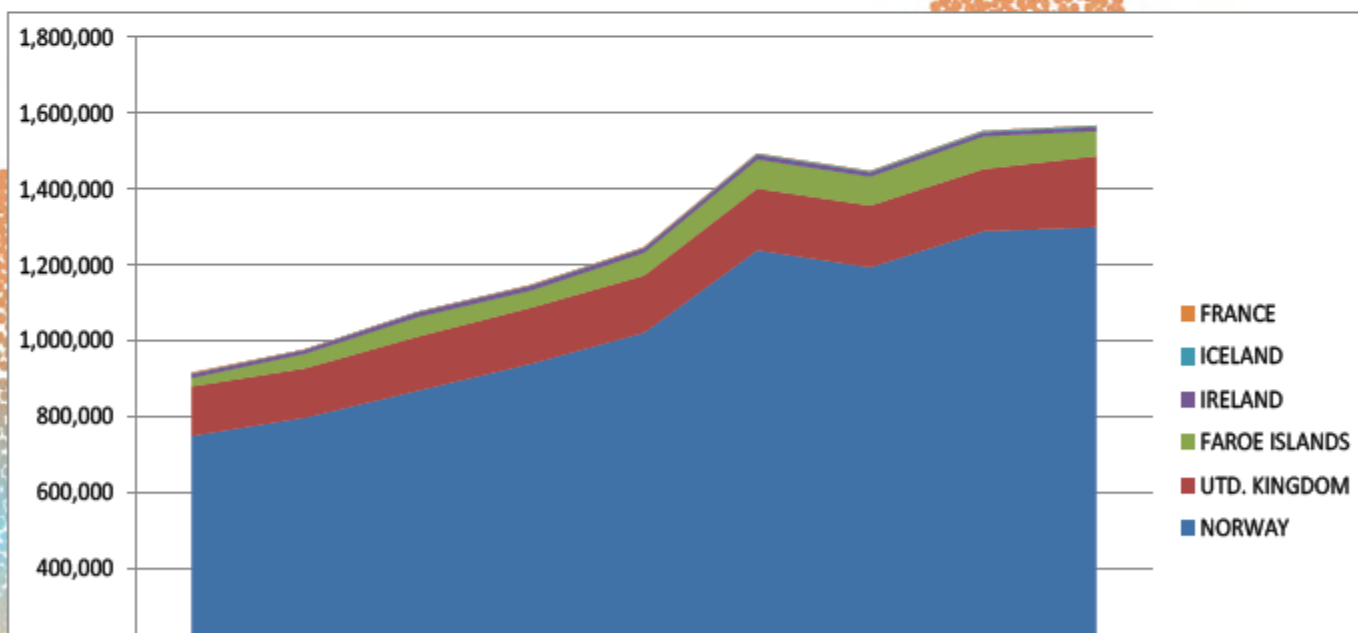
# FISH FARMING PRODUCTION IN NON-EU EUROPE

PRODUCTION (tons)	YEAR								
COUNTRY	2007	2008	2009	2010	2011	2012	2013	2014	2015
NORWAY	842,521	904,623	967,235	1,018,201	1,093,300	1,325,550	1,270,150	1,370,090	
TURKEY	136,573	149,589	155,802	164,197	187,136	210,824	231,672	232,152	
FAROE ISLANDS	29,183	45,506	57,900	47,190	62,400	76,800	76,480	86,449	
ICELAND	5,588	5,014	5,116	5,018	5,260	7,368	6,886	8,289	
<b>Grand Total</b>	<b>1,013,865</b>	<b>1,104,732</b>	<b>1,186,053</b>	<b>1,234,606</b>	<b>1,348,096</b>	<b>1,620,542</b>	<b>1,585,188</b>	<b>1,696,980</b>	



# ATLANTIC SALMON (SALMO SALAR)

PRODUCTION (tons)		YEAR					
SPECIES	COUNTRY	2007	2008	2009	2010	2011	2012
Atlantic salmon	NORWAY	751,000	799,000	870,000	941,001	1,023,000	1,240,000
	UTD. KINGDOM	129,930	129,545	142,283	147,412	150,000	162,223
	FAROE ISLANDS	22,300	38,800	51,500	45,400	60,400	76,800
	IRELAND	11,000	10,000	12,500	12,500	12,000	12,000
	ICELAND	1,158	292	714	1,068	1,083	2,923
	FRANCE	1,800	0	0	802	700	300
Atlantic salmon Total		917,188	977,637	1,076,997	1,148,183	1,247,183	1,494,246



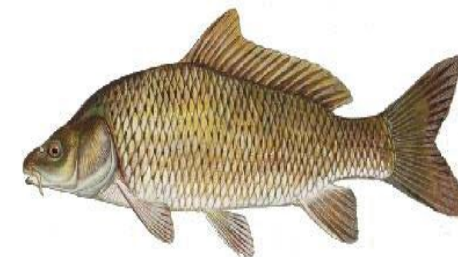




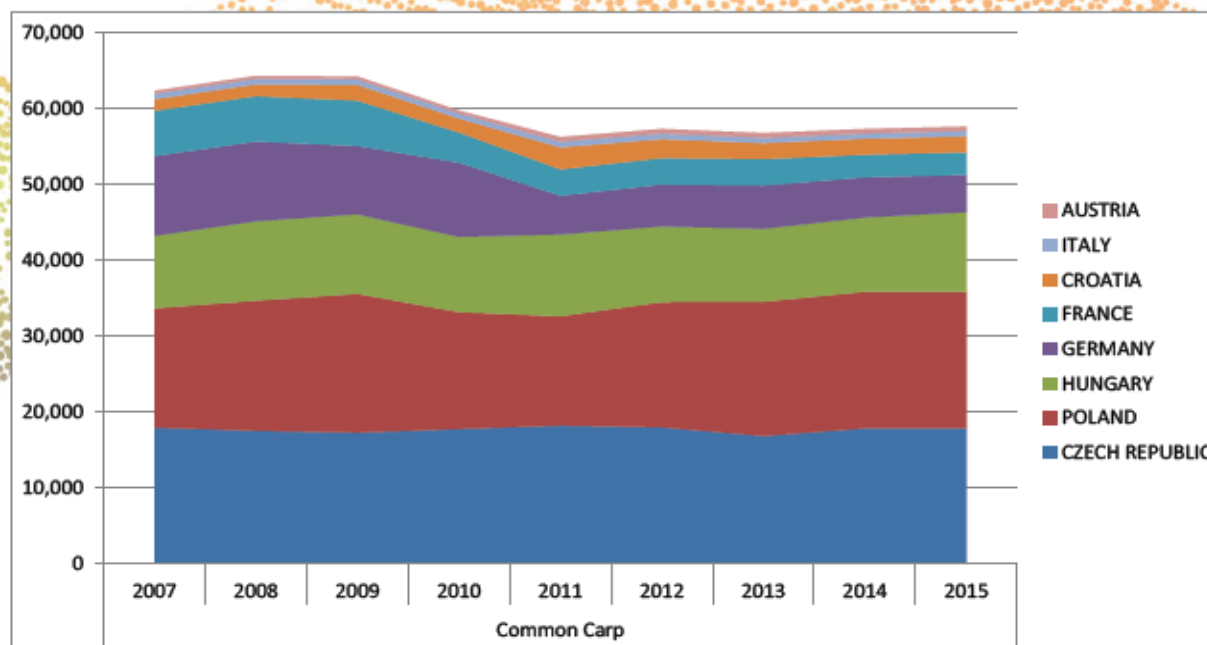


# Common Carp production 2007-2015

## 57.610 t.



PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Common Carp	POLAND	15,698	17,150	18,300	15,400	14,400	16,500	17,700	18,000	18,000	
	CZECH REPUBLIC	17,947	17,507	17,258	17,746	18,198	17,972	16,809	17,833	17,860	
	HUNGARY	9,570	10,485	10,500	9,927	10,807	9,985	9,632	9,800	10,461	
	GERMANY	10,500	10,500	9,000	9,783	5,082	5,521	5,700	5,285	4,916	
	FRANCE	6,000	6,000	6,000	4,000	3,500	3,500	3,500	3,000	3,000	
	CROATIA	1,503	1,546	2,058	1,816	2,891	2,484	2,100	2,100	2,100	
	ITALY	750	750	750	700	750	750	700	700	700	
	AUSTRIA	346	362	344	348	596	590	619	573	573	
Common Carp Total		62,314	64,300	64,210	59,720	56,224	57,302	56,760	57,291	57,610	

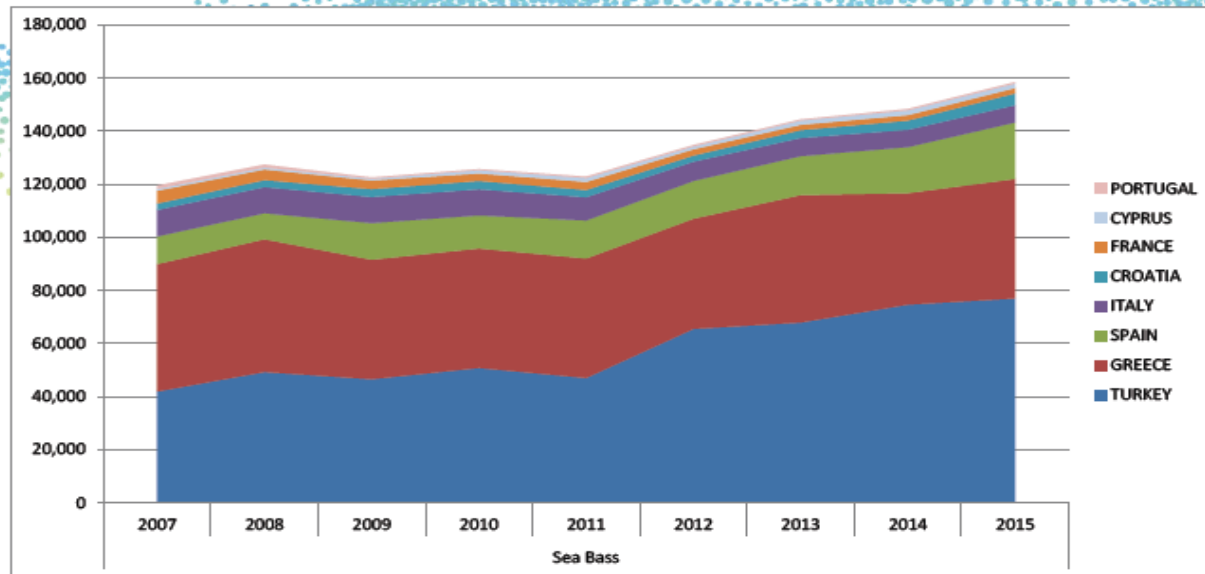


# Sea bass production (tons) 2005-2014

## 158.479 t



PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Sea Bass	TURKEY	41,900	49,270	46,554	50,796	47,013	65,512	67,912	74,653	77,000	
	GREECE	48,000	50,000	45,000	45,000	45,000	41,500	48,000	42,000	45,000	
	SPAIN	10,480	9,840	13,840	12,495	14,370	14,270	14,700	17,376	21,324	
	ITALY	9,900	9,800	9,800	9,800	8,700	7,200	6,800	6,500	6,450	
	FRANCE	4,764	3,968	3,204	2,779	3,000	2,300	1,970	2,021	1,980	
	CROATIA	2,500	2,700	3,000	3,200	2,785	2,375	3,014	3,500	4,500	
	CYPRUS	740	752	703	1,237	1,500	1,096	1,621	1,817	1,725	
	PORTUGAL	1,205	1,069	444	396	480	500	400	500	500	
Sea Bass Total		119,489	127,399	122,545	125,703	122,848	134,753	144,417	148,367	158,479	

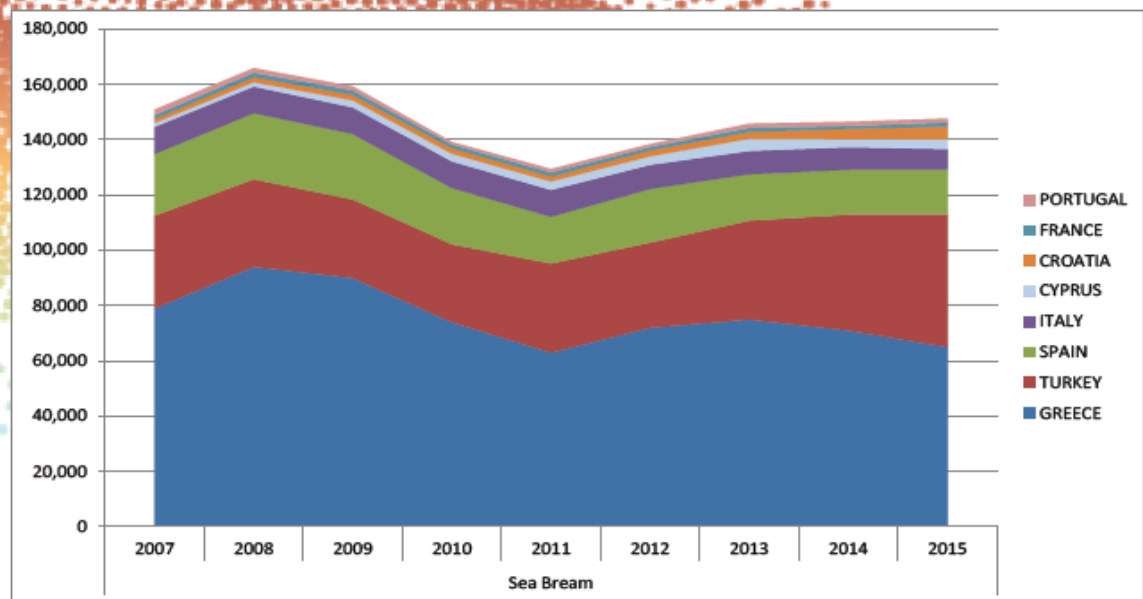


# Sea bream production (tons) 2005-2014

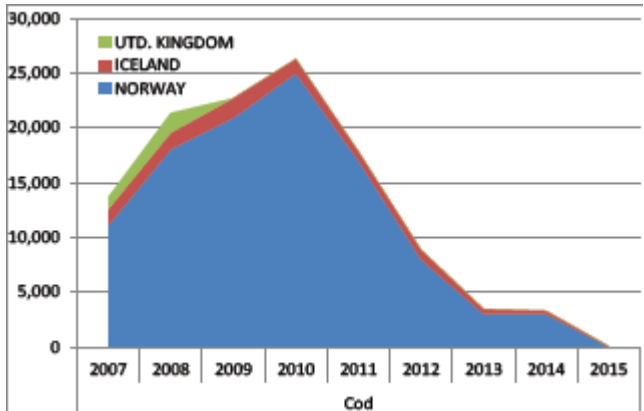
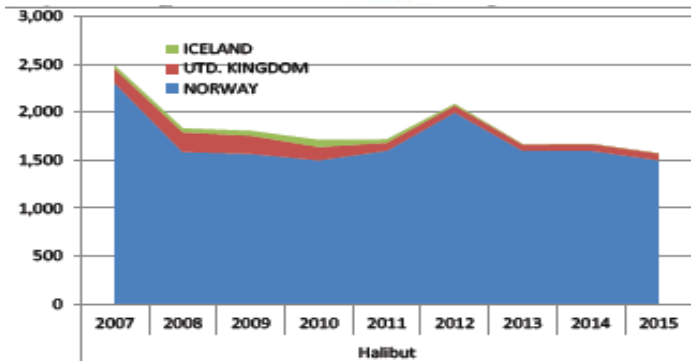
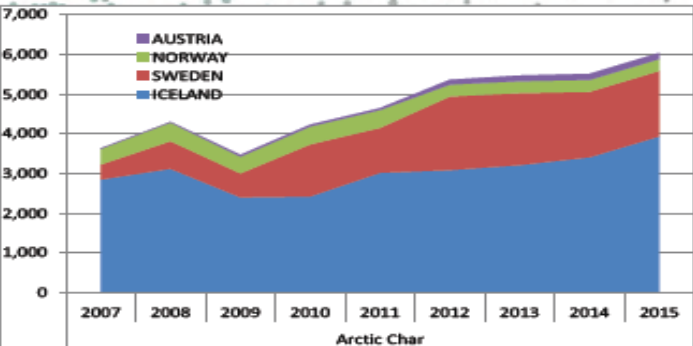
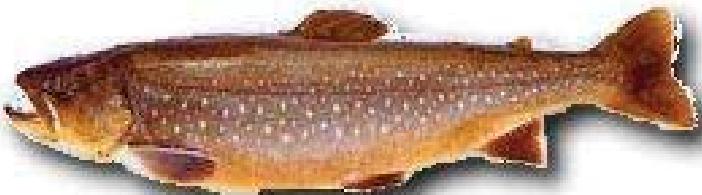
## 147.649 t



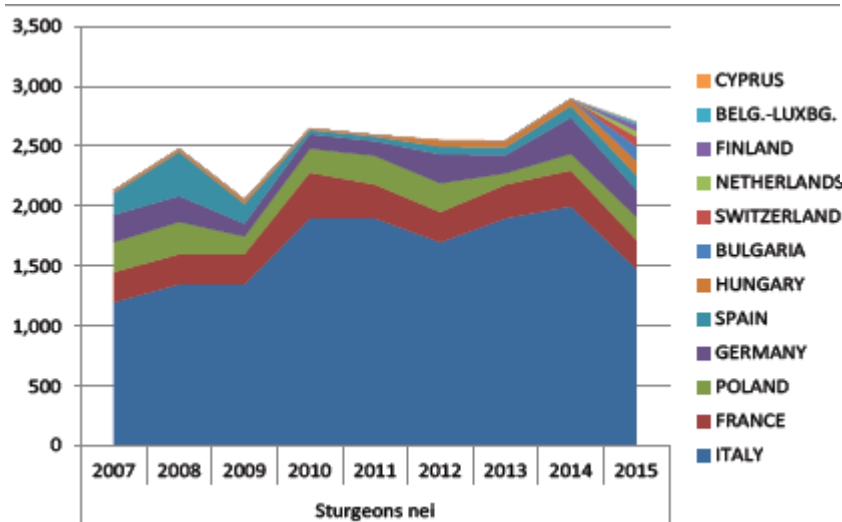
PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Sea Bream	GREECE	79,000	94,000	90,000	74,000	63,000	72,000	75,000	71,000	65,000	
	TURKEY	33,500	31,670	28,362	28,157	32,187	30,743	35,701	41,873	48,000	
	SPAIN	22,320	23,930	23,690	20,360	16,930	19,430	16,800	16,230	16,231	
	ITALY	9,800	9,600	9,600	9,600	9,700	8,700	8,400	8,200	7,360	
	CROATIA	1,500	1,800	2,000	2,000	1,793	2,105	2,466	3,640	4,500	
	CYPRUS	1,404	1,600	2,572	2,799	3,065	3,121	4,444	2,919	3,656	
	PORTUGAL	1,930	1,635	1,383	851	1,200	1,000	1,500	1,500	1,400	
	FRANCE	1,392	1,636	1,648	1,377	1,500	1,300	1,477	1,105	1,502	
<b>Sea Bream Total</b>		<b>150,846</b>	<b>165,871</b>	<b>159,255</b>	<b>139,144</b>	<b>129,375</b>	<b>138,399</b>	<b>145,788</b>	<b>146,467</b>	<b>147,649</b>	



# Arctic Char (6.032 t), Halibut (1.500 t) and Cod (75 t) production 2007-2015

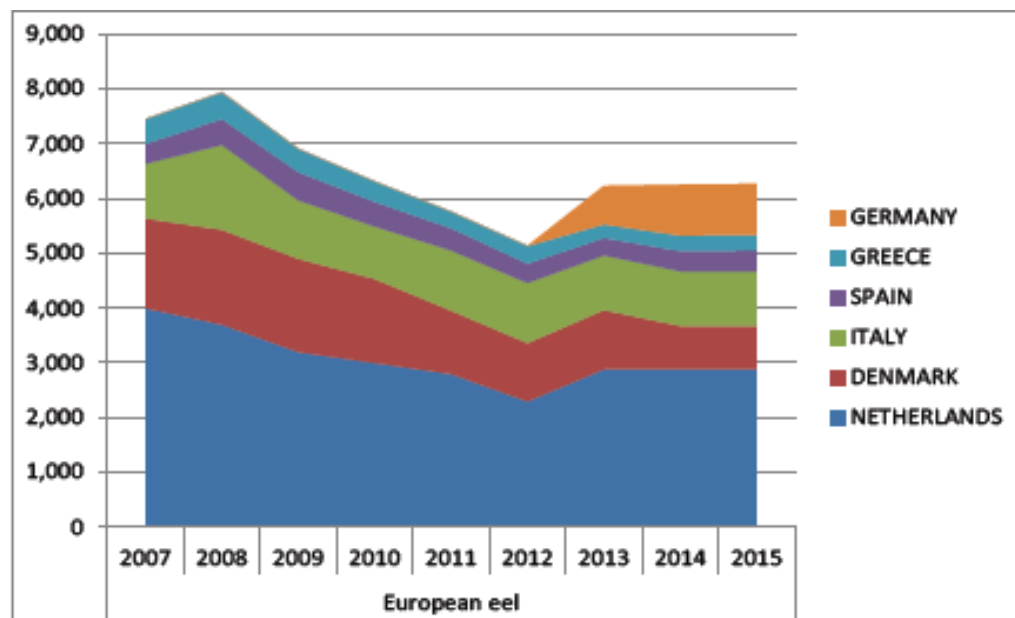
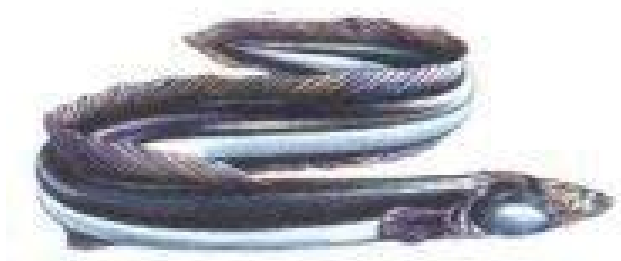


# Sturgeon (2.559 t) & caviar production (127 t) 2007-2015



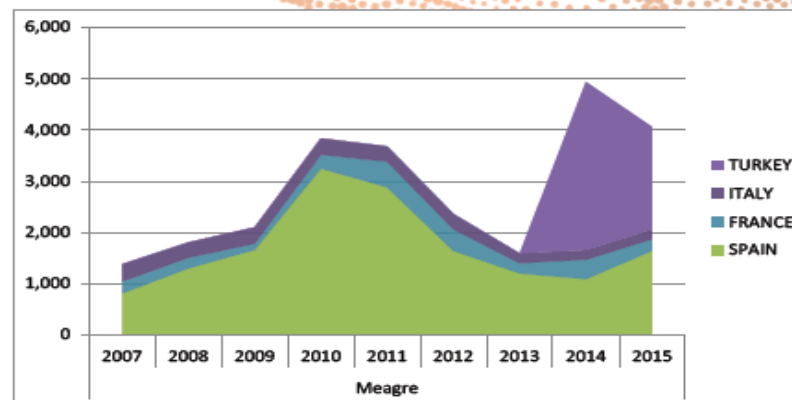
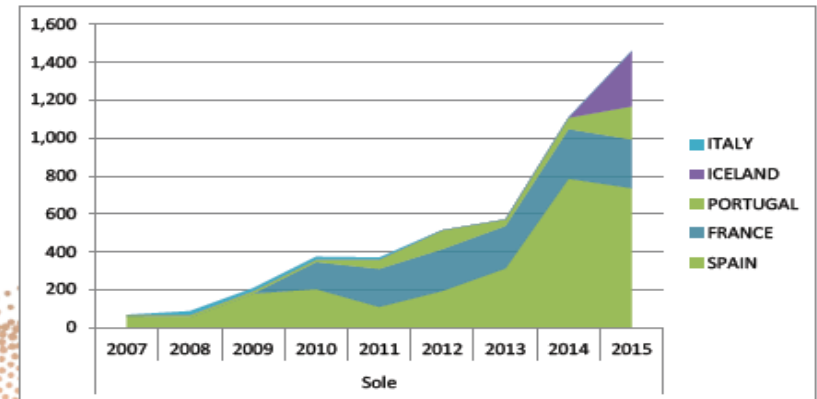
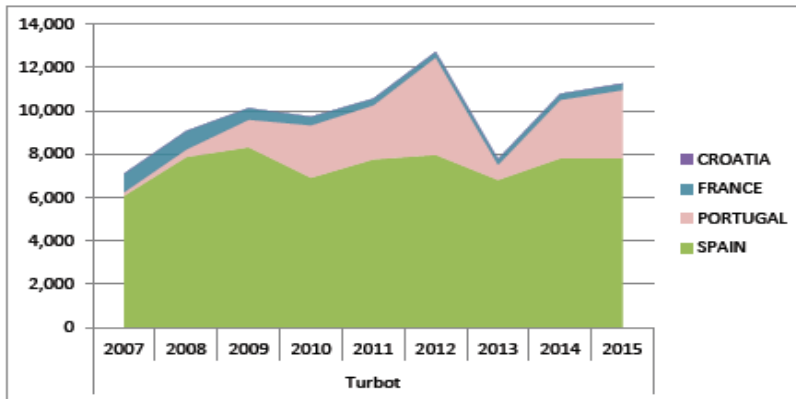
SPECIES	COUNTRY	PRODUCTION (tons)	
		2015	2016
Caviar - Sturgeon	BELG.-LUXBG.	3	3
	FINLAND	4	4
	FRANCE	23	30
	GERMANY	17	15
	HUNGARY	2	3
	ITALY	35	38
	NETHERLANDS	2	2
	POLAND	10	15
	SPAIN	4	6
	BULGARIA	6	7
LATVIA	2	3	
SWITZERLAND	1	1	
<b>Caviar - Sturgeon Total</b>		<b>109</b>	<b>127</b>

# Eel production (6.266 tons) 2007-2015



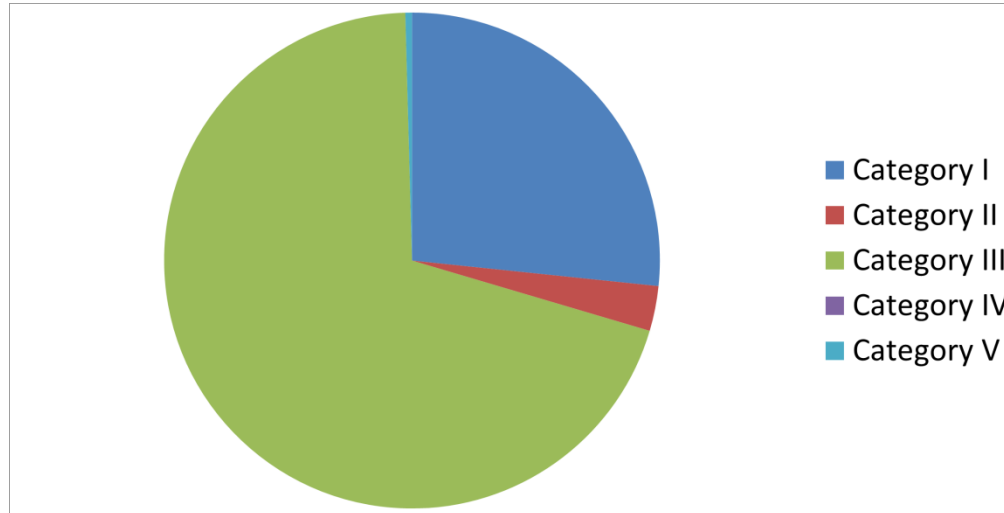


# Turbot (10.787 t.), sole (1.107 t.) & meagre (5.021 t) production 2005-2014



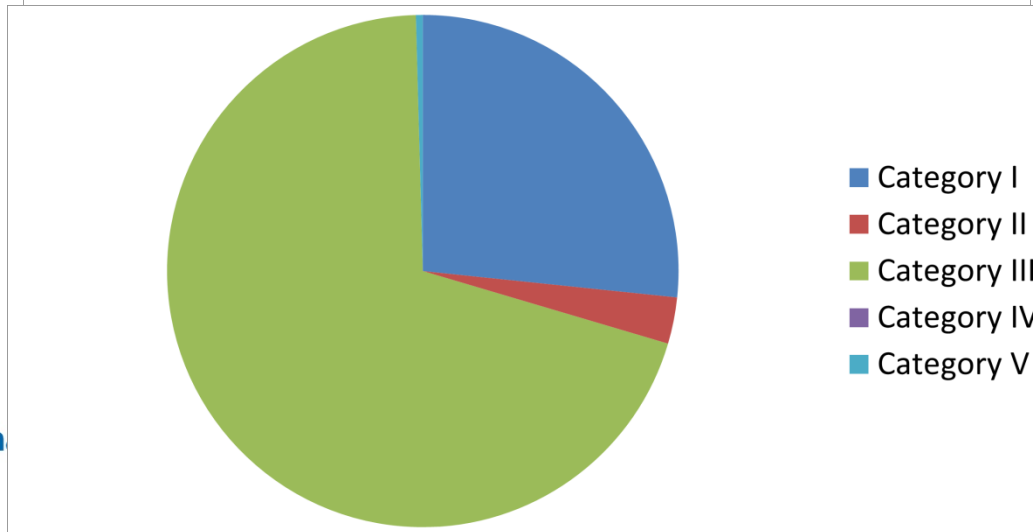
# Distribution of farms in zones and compartments according to category for VHS and IHN

**VHS**



Comprising  
13.511 fish farms

**IHN**

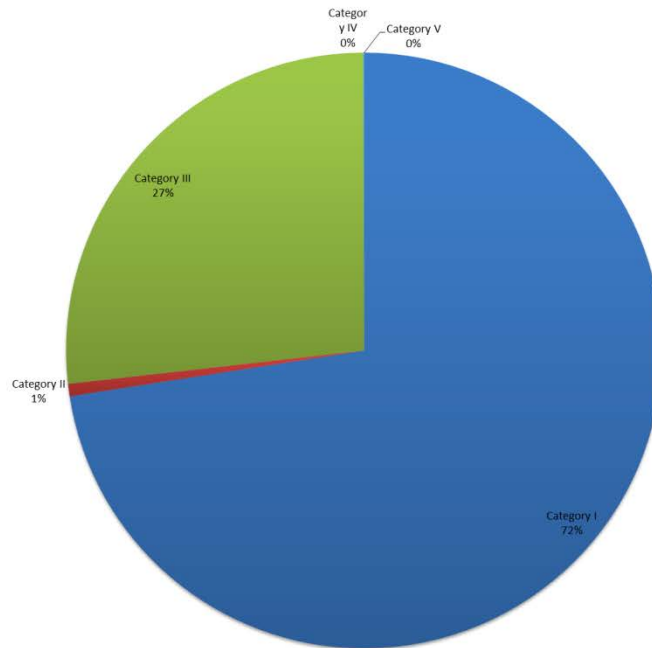


Comprising  
12.251 fish farms

National Veterin

# Distribution of farms in zones and compartments according to category for ISA

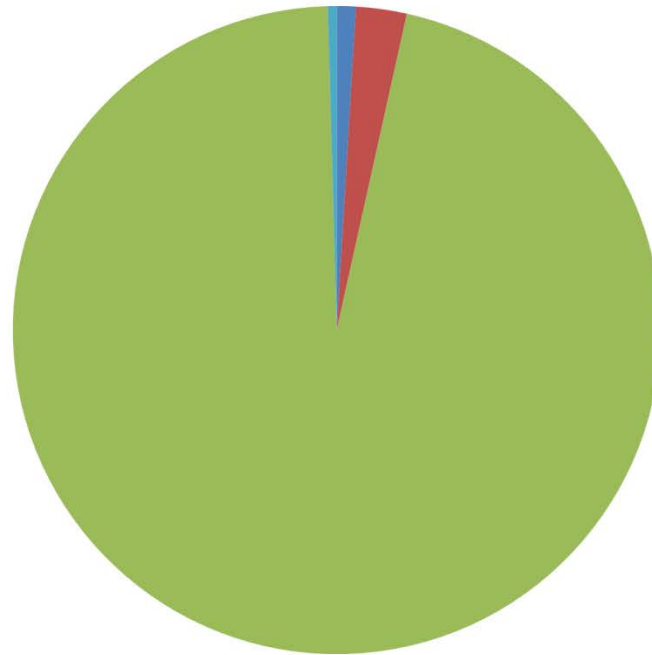
## ISA



Comprising 5.201 salmonid fish farms  
3.773 in Cat.1 and  
1.391 in Cat.3.  
2 infected farms.

# Distribution of farms in zones and compartments according to category for KHV

**KHV**



Comprising 12.680 cyprinid fish farms  
12.182 in Cat.III and only 120 in cat.I. But 321 farms in control programs Cat II ! And 55 farms in Cat V

## VHS in Europe 2016



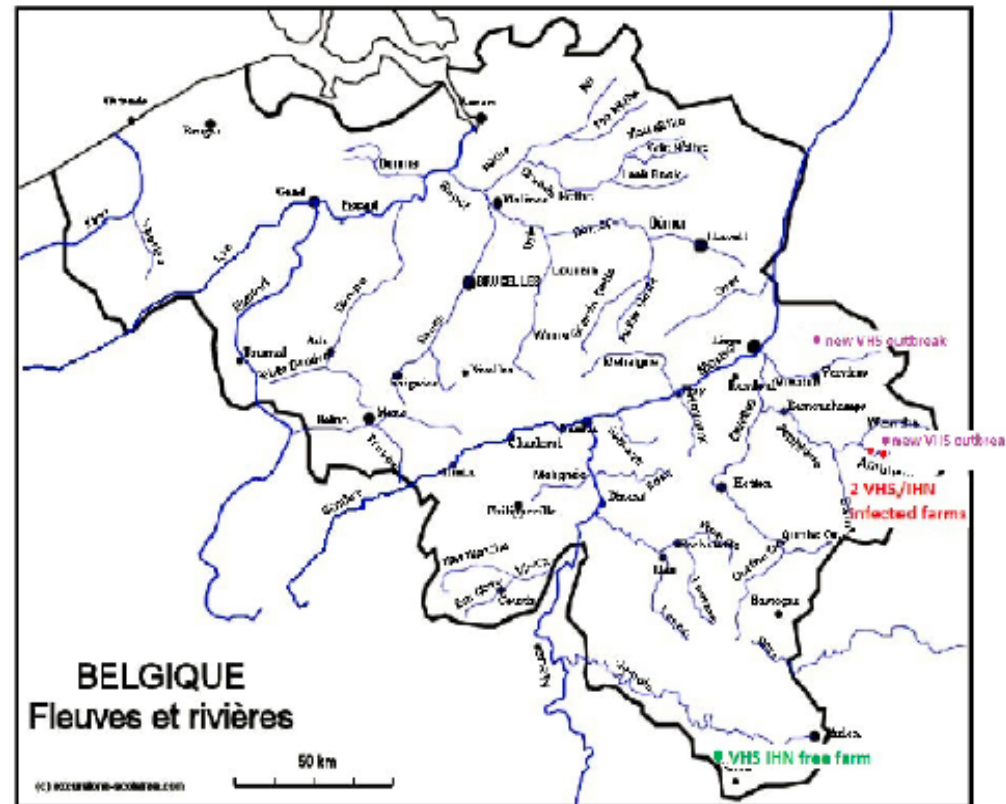
- a moderate increase in the number of **VHS** infected farms were observed with 2 new outbreaks **Belgium** (in brook trout farm!), 9 new cases in **Bavaria**, a new outbreak of VHS in **Romania** and 3 outbreaks in **Czech Republic**.
- Decrease in severity observed in Mecklenburg-Western Pomeranian and in Saxony, and only 1 farm positive in Switzerland, no VHSV positive samples were found in Croatia and no other reports of changed severity of VHS was given.

# VHS in Belgium 2016

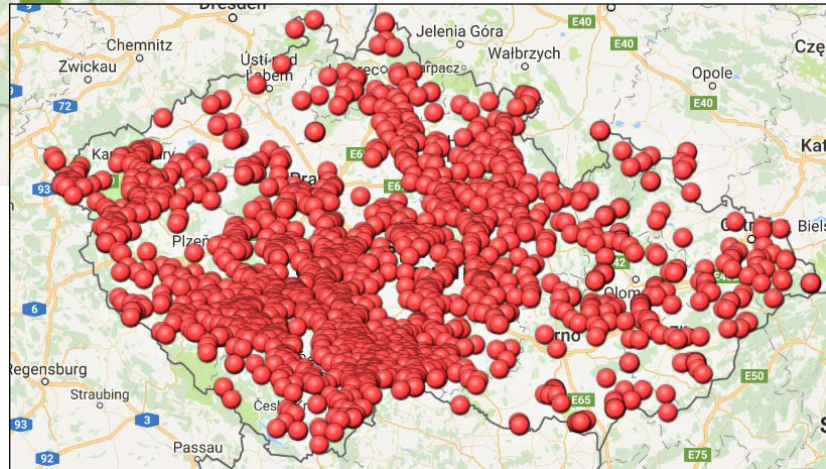
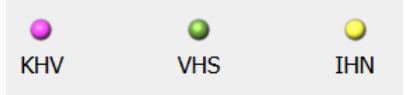


- 2 outbreaks- 1 stamping out.
- 1 outbreak in brook trout

Interestingly 3 outbreaks of Perch rhabdovirus infection in Pike-perch fry with 100% mortality



# VHS in Czech Republic 2008-2016





# No findings of VHSV in cleaner fish (Lumpfish or Wrasse) in 2016

- A WG Nov. 2016 for risk assessment and recommendations

## Cleaner fish in aquaculture: Health management and legislative issues

### Contents

1. Introduction .....	3
2. Production and management of cleaner fish .....	4
2.1 Wild-caught wrasse (Labridae) .....	4
2.1.1 Capture and transport to shore .....	4
2.1.2 Temporary local storage .....	5
2.1.3 Transport to salmon farms .....	5
2.1.4 Reception and stocking .....	5
2.2 Farming of ballan wrasse .....	5
2.2.1 Broodstock .....	5
2.2.2 Roe and milt .....	6
2.2.3 Feeding and nutrition .....	6
2.2.4 Water supply and treatment .....	6
2.2.5 Vaccination .....	6
2.2.6 Transport and stocking .....	7
2.3 Farming of lumpfish .....	7







## Recommendations

- inclusion of wrasse species and lumpfish in the list of susceptible species for VHS
- The inclusion of cleanerfish in this list of susceptible species for VHS fulfil the requirements given in the OIE Aquatic Code (Chapter 1.5)
- This implies that such species, once held captive for the purpose of use as cleanerfish, are considered susceptible aquaculture species with the related consequences in terms of surveillance, screening and control measures for preventing spread of listed and emerging diseases.

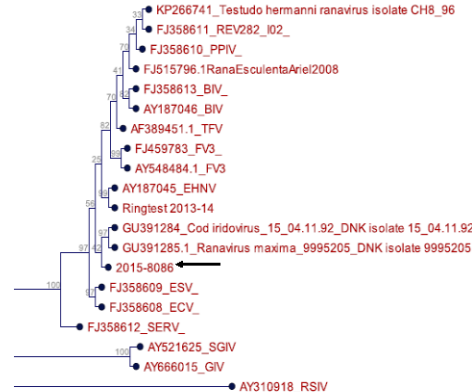
# Cleaner fish: New pathogens New diseases



- VHSV
- RANAVirus
- Flavivirus

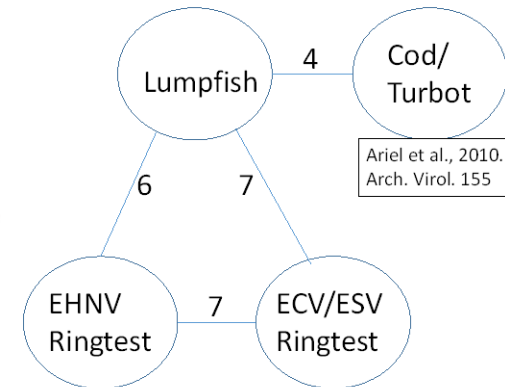
Ongoing research and risk assessments  
Scotland, Ireland, Denmark  
Iceland, Faroe Islands on RANA virus  
Norway on Flavivirus

Comparison to known Ranavirus MCP seq.



29.5.2017

Differences in seq. data.  
MCP gene, 479 bp.



Sigríður Guðmundsdóttir Keldum

6

# IHN in Europe 2016

- Few reports
- Increase in Saxony with 3 new outbreaks
- Increase in severity and size of susceptible fish continue in Italy (pers. com.)
- 1 new outbreak in The Netherlands



## ISA in Europe 2016

- Norway reported 12 new sites with ISAV HPRΔ (Brit Hjeltnes – next and Torfin Moldal tomorrow, Session IV)
- Faroe Islands reported 1 finding of HPRΔ in 2016 without clinical symptoms and with an outbreak in 2017. (Debes Christiansen tomorrow presentation in Session IV)
- No other reports on ISA.
- Isavirus HPR0 no longer listed in EU legislation but is in OIE



# KHV in Europe 2016



- **Germany** reported increases in number of infected farms in Saxony and Rhineland-Palatina.
- In **Ireland** and in **Lithuania** 1 outbreak in garden ponds reported
- In the **Netherlands** 2 outbreaks in open water carps.
- In **England and Wales** 33 outbreaks were reported in 2016 (only 11 in 2015).
- In **Croatia** KHV was reported from 2 farms and 2 ponds for sport fishing- Croatia have not encountered KHV before.
- No other information on KHV in Europe were given

# Other fish diseases problems in Europe

## Rainbow trout



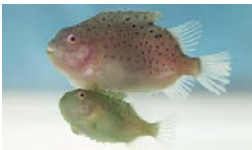
- In **rainbow trout** the major concerns are flavobacteriosis (RTFS), red mark syndrome (Jacob G. Schmidt in Session II), puffy skin, enteric redmouth, and infectious pancreatic necrosis but also, lactococcosis, bacterial kidney disease, proliferative kidney disease, ichthyophthiriasis, saprolegniosis, columnaris and furunculosis (especially in brown trout).
- In Norway detection of PRV-*om* have been made in more than 100 samples.
- Any impact of PRV in RT farming? (Niccolo Vendramin in Session II)

# Other fish diseases problems in Europe

## Atlantic salmon



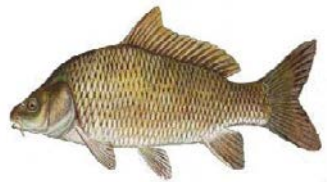
- In **salmon** farming it is sea lice, pancreatic disease, heart and skeletal muscle inflammation, cardiomyopathy syndrome, amoebic gill disease, and moritella and in addition flavobacteriosis, furunculosis, and saprolegniosis (Baltic salmon). In Atlantic salmon: sea lice, PD, HSMI, CMS, AGD, and moritella (cold water disease).
- In cleaner fish it is primarily vibriosis and *A. salmonicida*



# Other fish diseases problems in Europe seabass and seabream



- In **seabass** and **seabream** it is primarily VNN/VER, *Lernathropus kroyeri* infection, Microcotylosis and Rash syndrome



*Aeromonas hydrophila*, SVC  
(in Romania)



# Other fish diseases problems in Europe carp



- CEV seem to be emerging (see Olga Haenen Session III)
- SVC found in Romania
- *Aeromonas hydrophila*

# Other specific findings and fish diseases problems in Europe



- IPN in Sweden 1 case of IPNV finding.
- Outbreaks of BKD in Iceland
- BKD in RAS
- Flavobacteriosis- an increasing problem

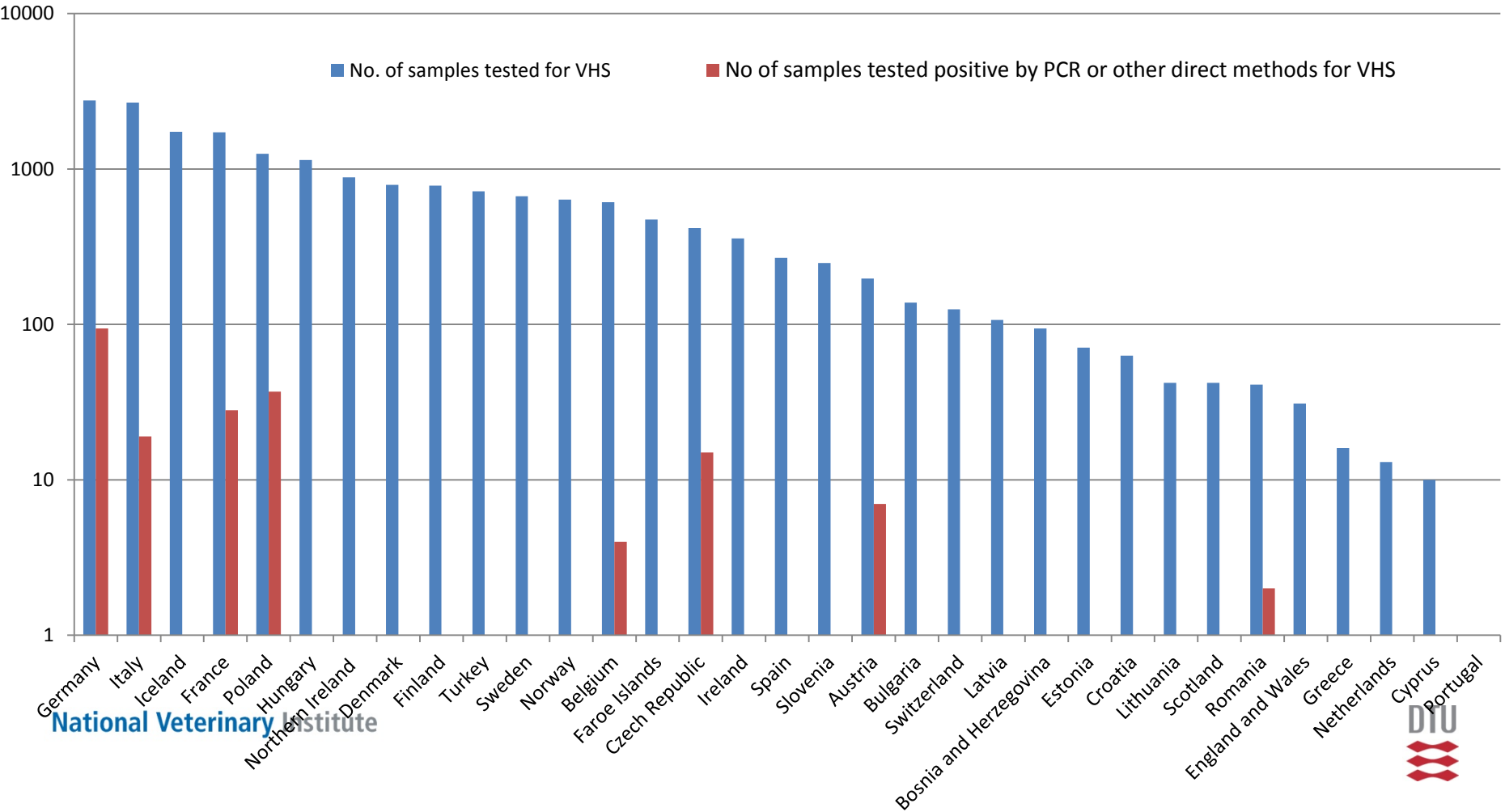
Session I: Working groups- assessing the most important diseases

## Other specific diseases problems in Southern Europe

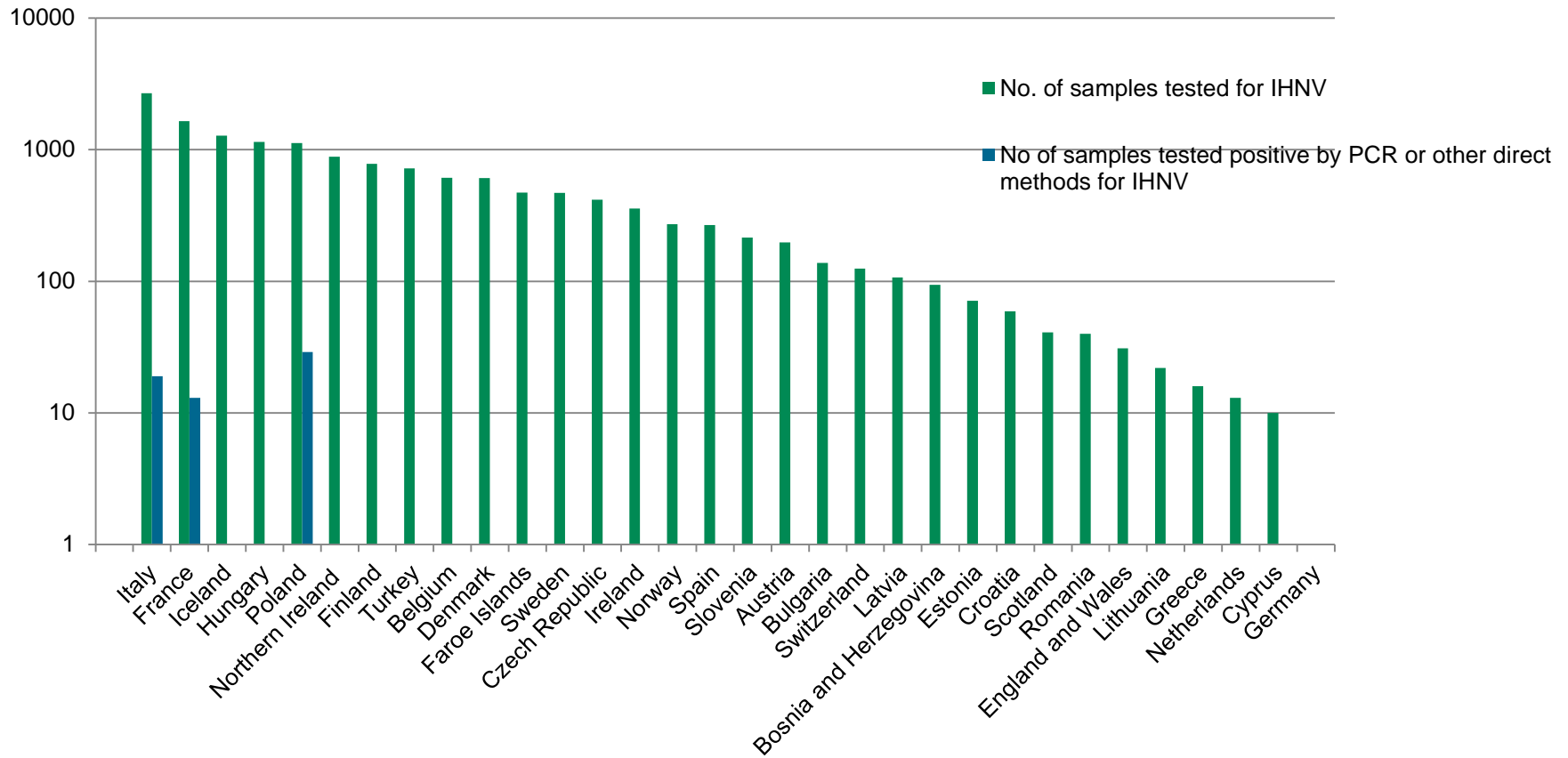


- **Lactococcosis** where there is available vaccine (Fatro in Italy) but need to be IP injected and this is not implemented consistently making the disease appear here and there
- **RTFS- Flavobacterium psychrophilum**. Some attempt ongoing with autologous vaccine
- **Red mark syndrome**
- Amoeba in freshwater Rainbow trout. Nodular gill disease <http://onlinelibrary.wiley.com/doi/10.1111/jfd.12446/full>

# Lab analysis 19.631 samples reported tested for VHS in 2016.



# Lab analysis 14.903 samples reported tested for IHN in 2016.



# Conclusion on S&D 2016

- **Stable production in EU**
- **Increased production in non-EU MS.**
- **Decrease in table size Rainbow trout production increase in large RT**
- **Decrease in salmon production but increase in value**
- **VHS few changes increase control and surveillance farms**
- **Lumpfish and wrasse to be recognized as susceptible species**
- **Several ISA outbreaks in Norway**
- **Skin distress a major problem in RT production**
- **CEV an emerging disease**

# Report on S&D

- Again this year, a complete report was produced and is enclosed in your folder.
- The report and this presentation can be retrieved from our web site:

[WWW.EURL-Fish.EU](http://WWW.EURL-Fish.EU)

In "Surveillance and diagnosis"

## Report on Survey and Diagnosis of Fish Diseases in Europe 2016



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

**Thank you for  
your attention!**

