



**European Union Reference Laboratory for Fish Diseases**

National Institute of Aquatic Resources, Technical University of Denmark



# Survey & Diagnosis of fish diseases in 2017

**Niels Jørgen Olesen, Niccolò Vendramin, Nikolaj R. Andersen**

***22<sup>nd</sup> Annual Workshop***

*of the National Reference Laboratories for Fish Diseases  
Copenhagen, Denmark, May 30<sup>th</sup> – 31<sup>st</sup> 2018*



# Survey & Diagnosis of listed fish diseases in the European Community 2017

An Annual questionnaire



1. **General data:** Number of farms and categorization
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:** Full reports given

# Report on Survey and Diagnosis of Fish Diseases in Europe 2017

## 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

**Please check if the information given is correct!**



# General production data taken from FIGIS & FEAP

FAO Home > Fisheries & Aquaculture

 **Food and Agriculture Organization of the United Nations**  
for a world without hunger

**Fisheries and Aquaculture Department**

Arabic | Español | Français | 中文 | Русский

Search...  more»


Home | About us | Activities | Statistics | Geoinfo | Meetings and News | Publications | Fact Sheets

**Statistics**

- Global Statistical Collections
- Regional Capture Statistical Collections
- All information collections
- Software
  - ARTFISH
  - OPEN ARTFISH
  - BEAM1 and 2
  - BEAM3

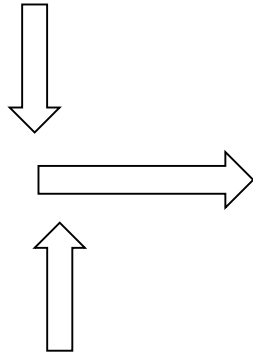
### FishStatJ - software for fishery statistical time series

FishStatJ is a Java-based desktop application which provides users with access to a variety of fishery statistical datasets. It consists of a main application and several workspaces that include the datasets.



**FishStatJ key features**

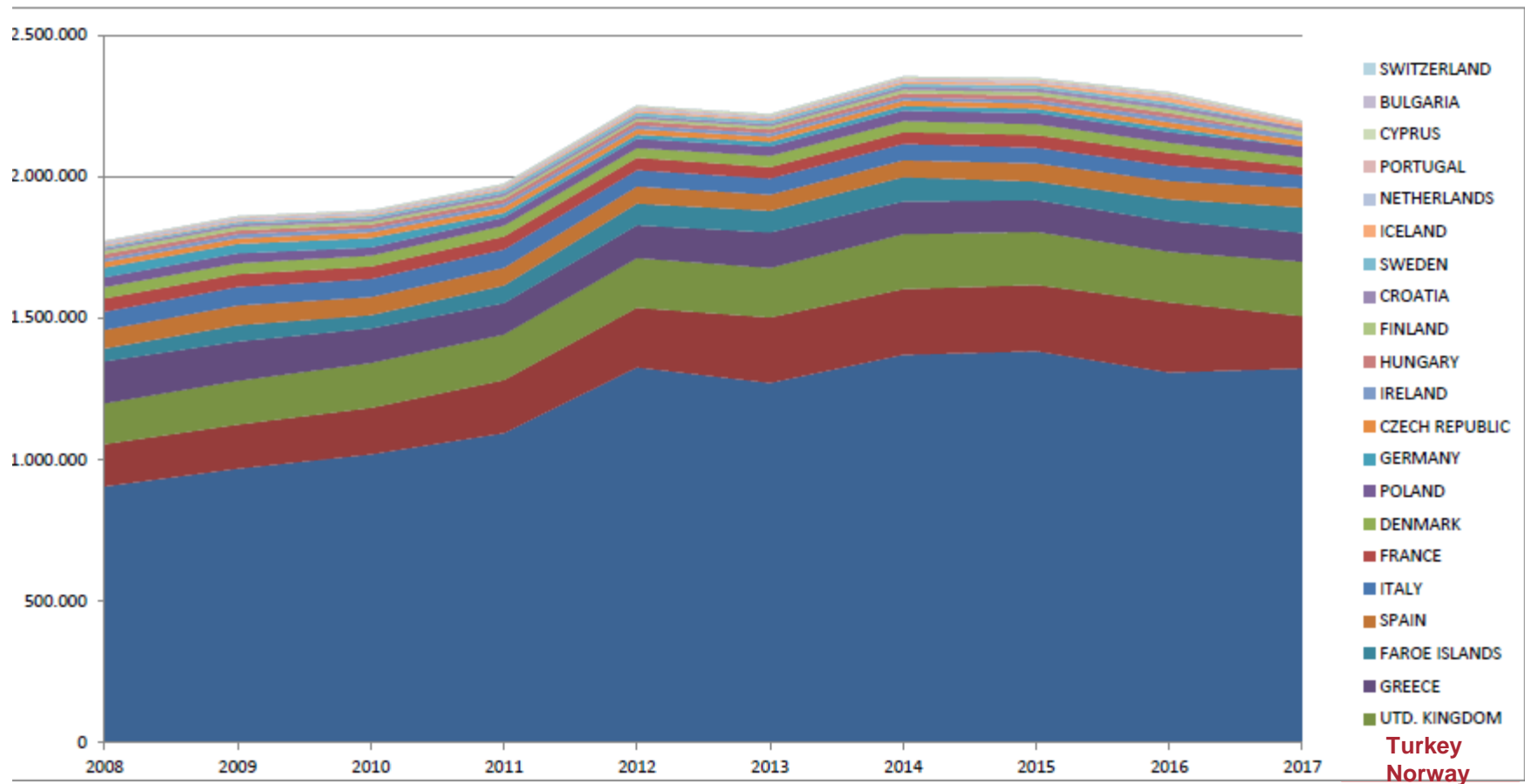
- statistical datasets browsing, data mining, charting and reporting
- filtering, grouping and aggregation through hierarchical dimensions



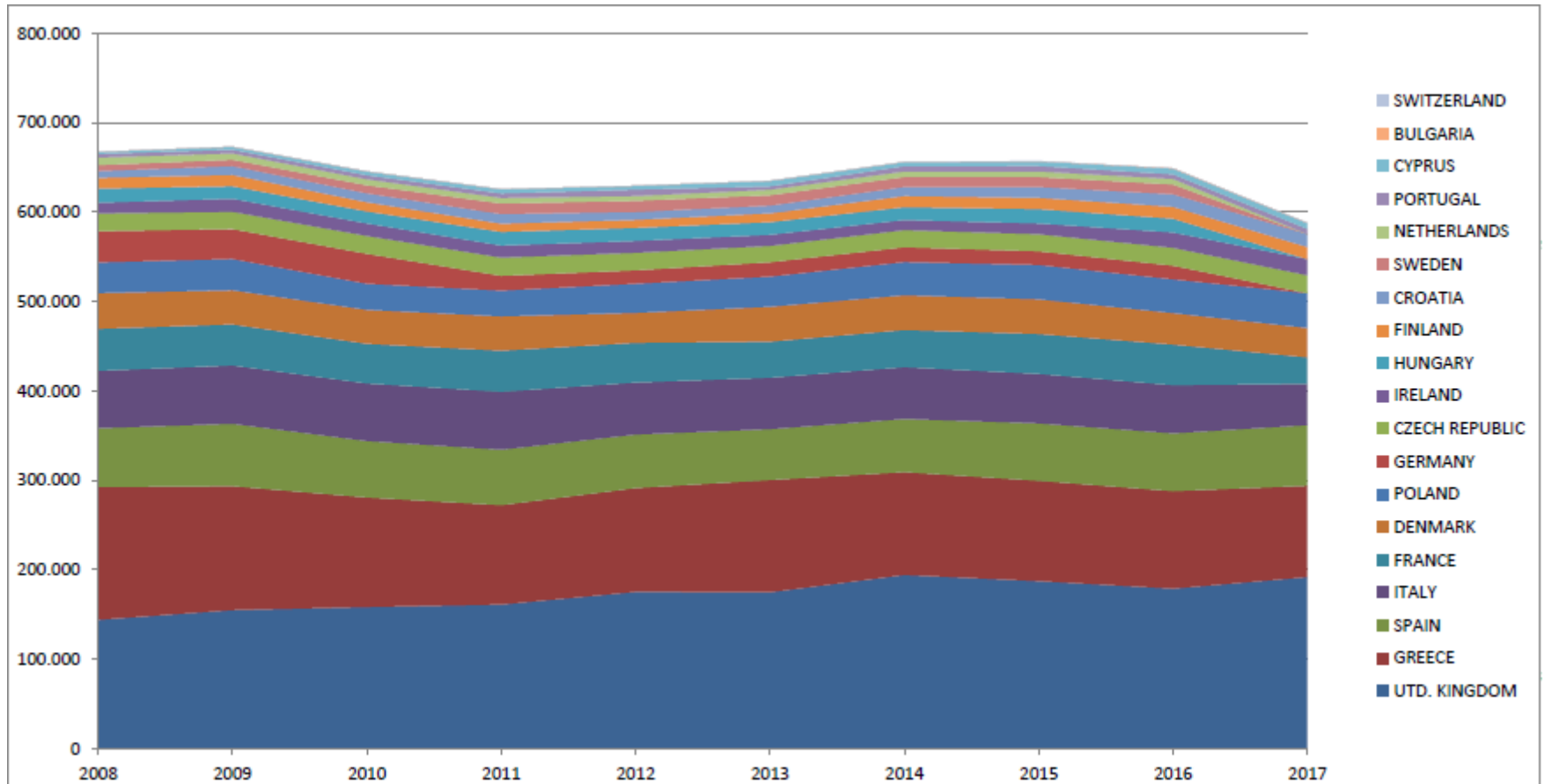
FEAP Members & National statistical offices data

Prepared by the FEAP secretariat (November 2017)  
contact: FEAP Secretariat - secretariat@feap.info

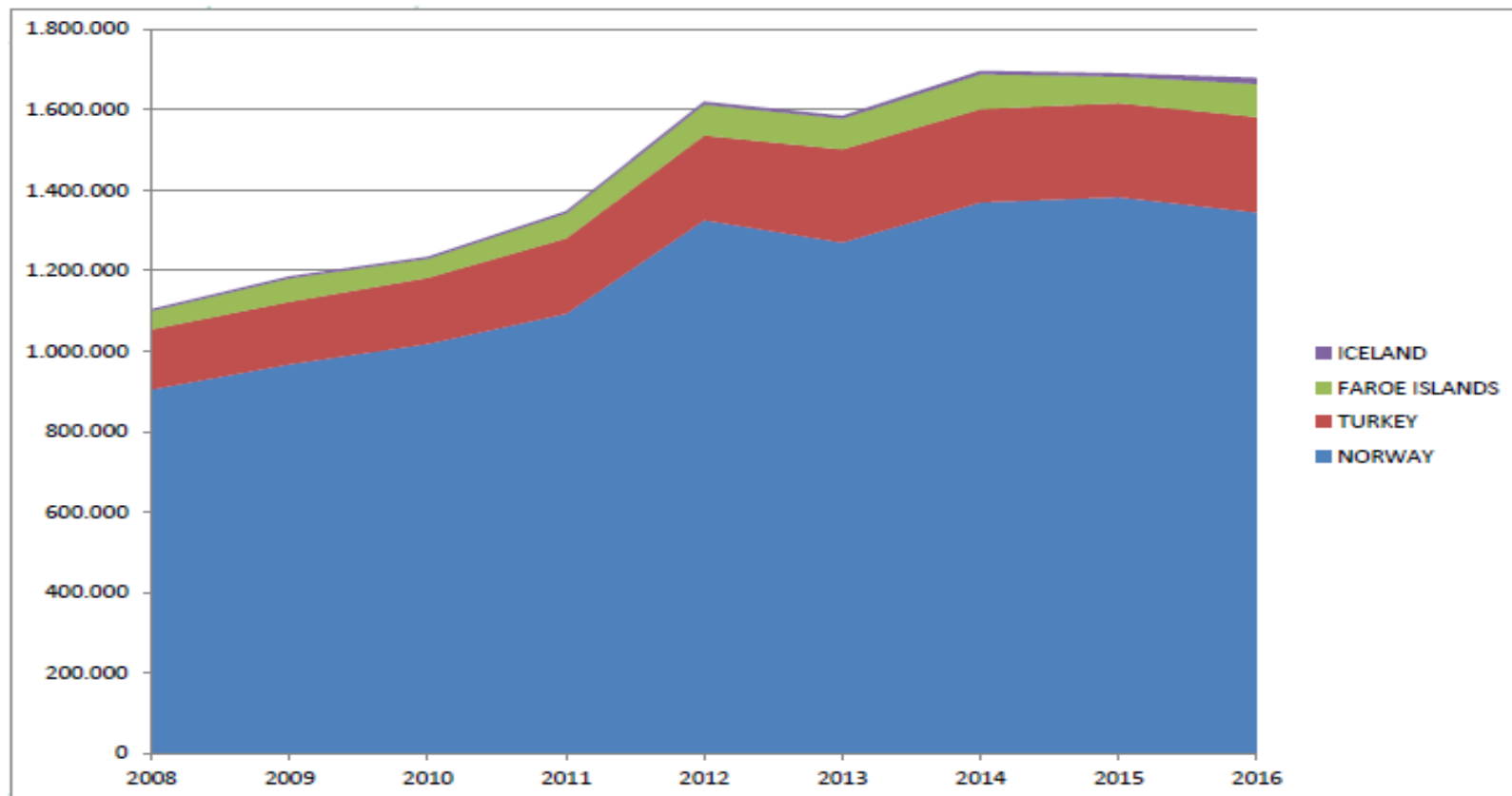
# Development of Fish Farming in Europe (2.297.571 tons) 2008-2016



# Development of Fish Farming in EU (648.935 tons) 2008-2016



# Development of Fish Farming in non-EU (1.648.636 tons) 2008-2016



## FEAP Production Report per Species

The FEAP Production report includes data on the following fish species reared in European aquaculture

- **Atlantic salmon**
- **Large (>1.2kg) and portion-size (<1.2kg) rainbow trout**
- **Halibut and cod**
- **Common carp and other cyprinid species**
- **Catfish species**
- **European eel**
- **Sturgeon and caviar**
- **Sea bass**
- **Sea bream**
- **Sea bass, sea bream juveniles**
- **Turbot, sole and meagre**

Production data for tuna and some freshwater species (perch, pike-perch, Northern pike) have not been included due to the current lack of reliable data.



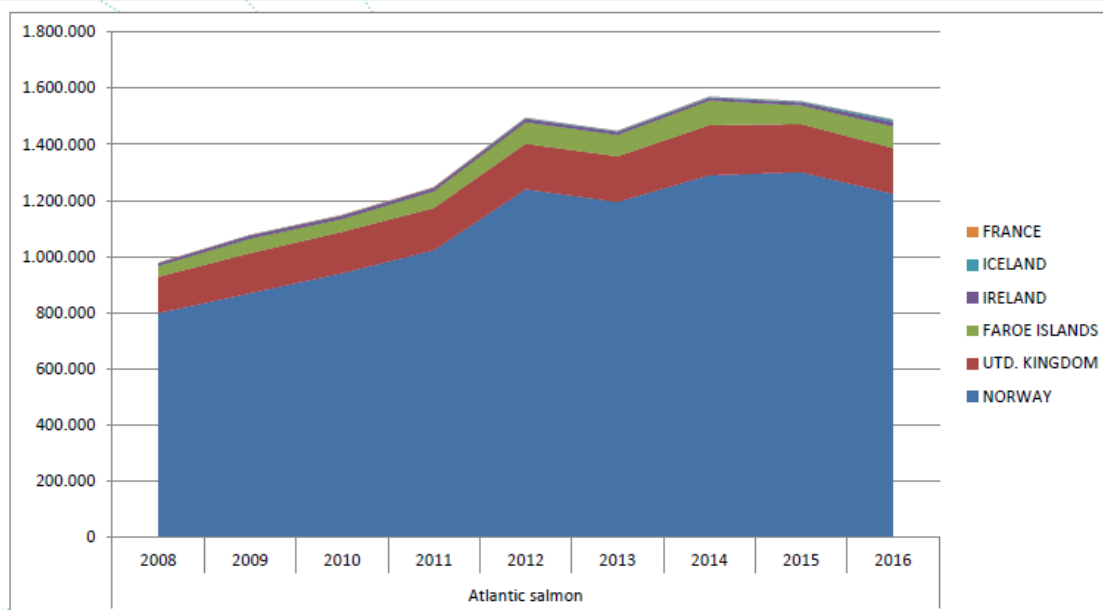
# Atlantic salmon production (tons)

## 2008-2016

### 1.488.434 t



PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Atlantic salmon	NORWAY	799.000	870.000	941.001	1.023.000	1.240.000	1.195.000	1.290.000	1.301.000	1.223.867	
	UTD. KINGDOM	129.545	142.283	147.412	150.000	162.223	162.234	179.022	171.722	162.817	
	FAROE ISLANDS	38.800	51.500	45.400	60.400	76.800	76.480	86.449	66.090	77.000	
	IRELAND	10.000	12.500	12.500	12.000	12.000	11.000	10.000	11.000	16.300	
	ICELAND	292	714	1.068	1.083	2.923	3.018	3.965	3.220	8.000	
	FRANCE	0	0	802	700	300	300	300	300	450	
Total Atlantic salmon		977.637	1.076.997	1.148.183	1.247.183	1.494.246	1.448.032	1.569.736	1.553.332	1.488.434	

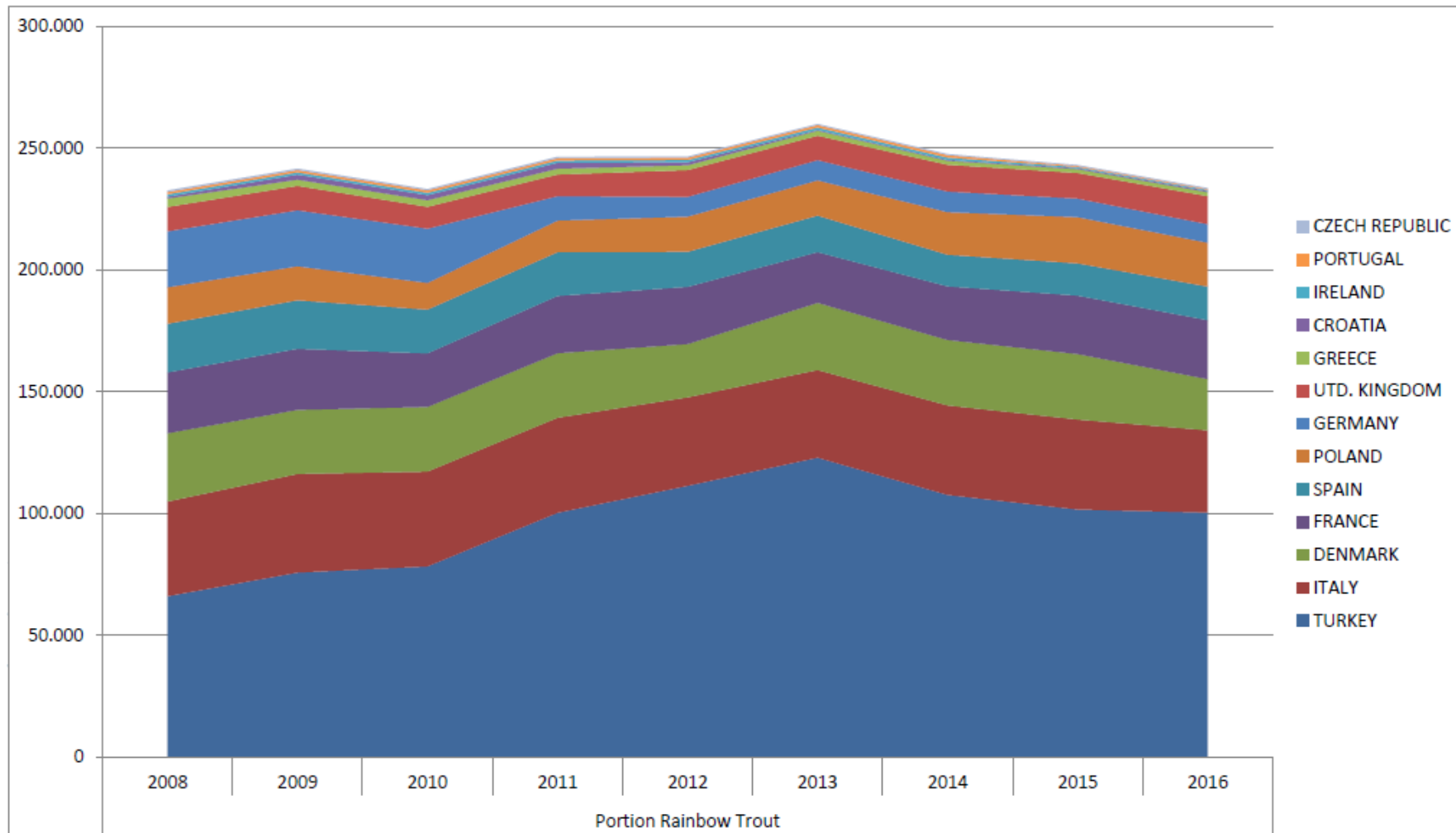




# Portion Rainbow Trout production

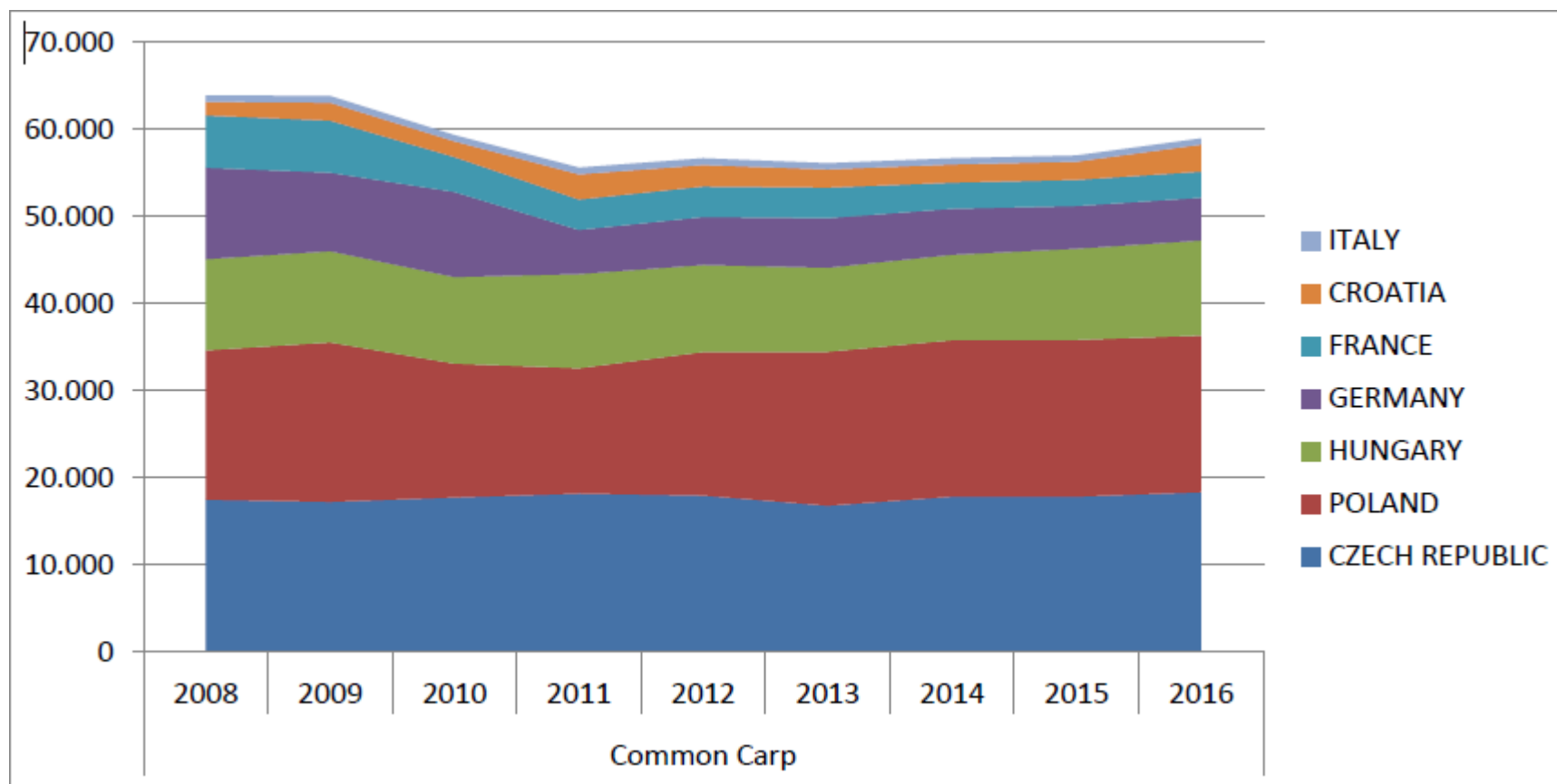
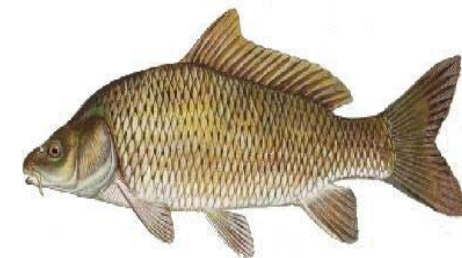
2008-2016

233.654 t.



# Common Carp production 2008-2016

58.995t.



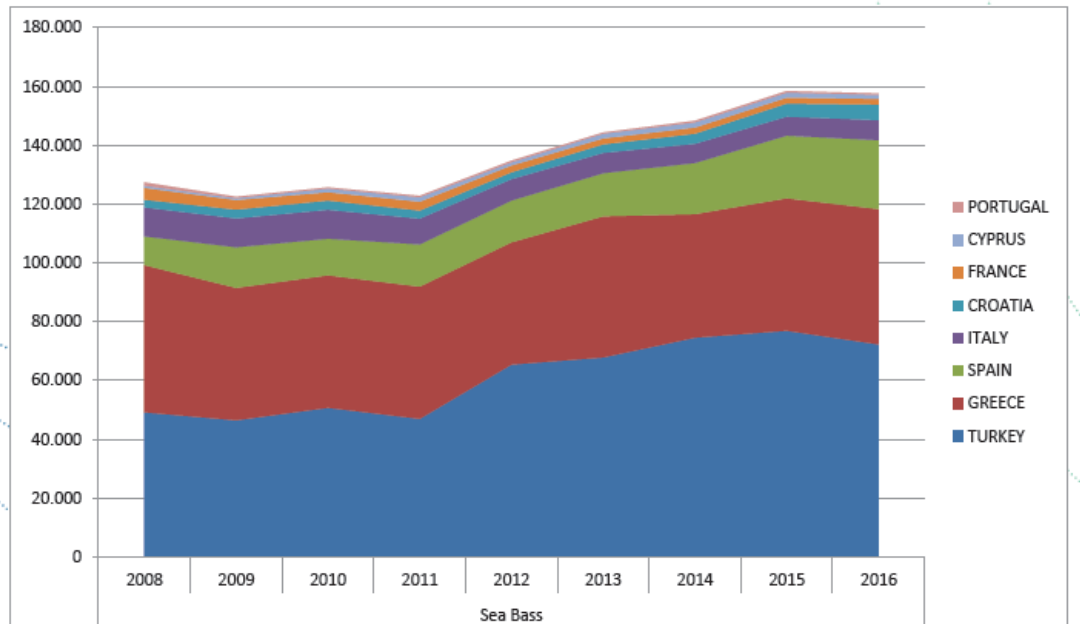
# Sea bass production (tons) 2008-2016

## 157.698 t



PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Sea Bass	TURKEY	49.270	46.554	50.796	47.013	65.512	67.912	74.653	77.000	72.342	
	GREECE	50.000	45.000	45.000	45.000	41.500	48.000	42.000	45.000	46.000	
	SPAIN	9.840	13.840	12.495	14.370	14.270	14.700	17.376	21.324	23.445	
	ITALY	9.800	9.800	9.800	8.700	7.200	6.800	6.500	6.450	6.800	
	FRANCE	3.968	3.204	2.779	3.000	2.300	1.970	2.021	1.980	1.928	
	CROATIA	2.700	3.000	3.200	2.785	2.375	3.014	3.500	4.500	5.291	
	CYPRUS	752	703	1.237	1.500	1.096	1.621	1.817	1.725	1.442	
	PORTUGAL	1.069	444	396	480	500	400	500	500	450	
<b>Total Sea Bass</b>		<b>127.399</b>	<b>122.545</b>	<b>125.703</b>	<b>122.848</b>	<b>134.753</b>	<b>144.417</b>	<b>148.367</b>	<b>158.479</b>	<b>157.698</b>	

SOURCE: FEAP - MedAqua species commission  
NOTE: Malta is not included due to lack of reliable data



# Sea bream production (tons) 2008-2016

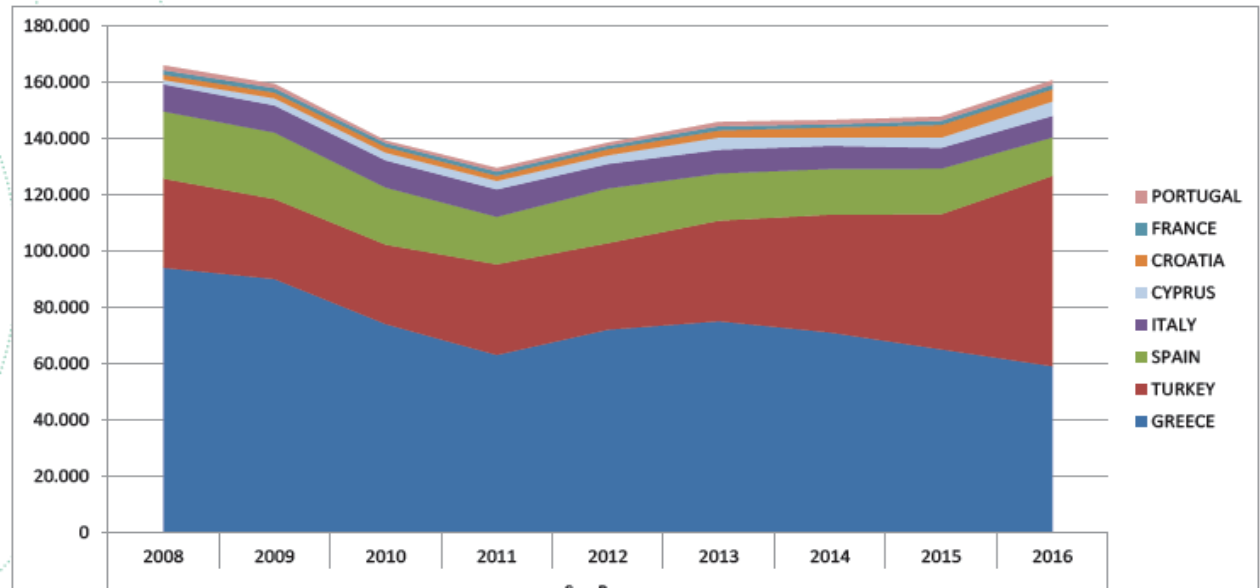
## 160.563 t



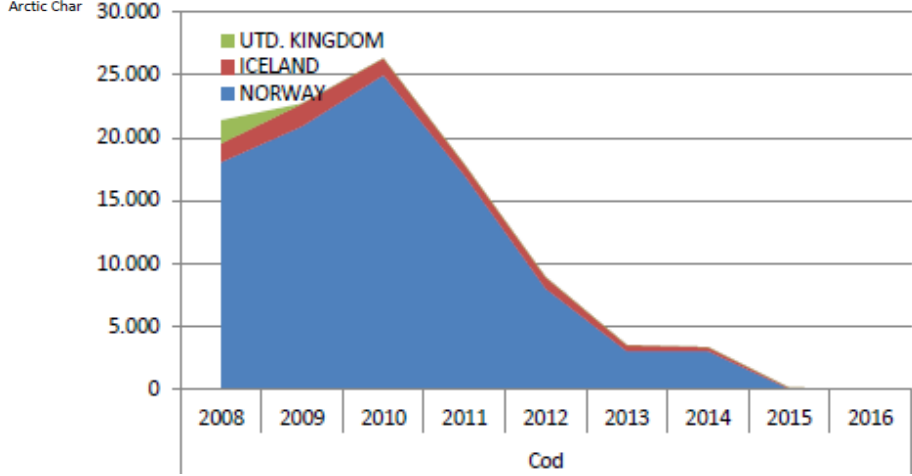
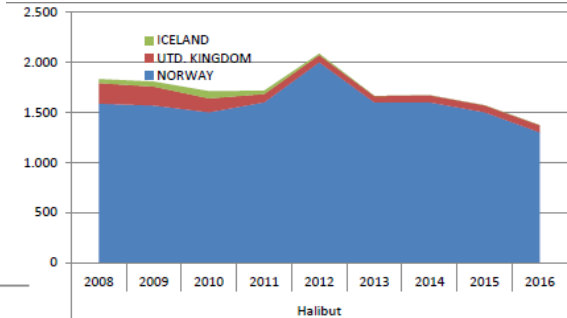
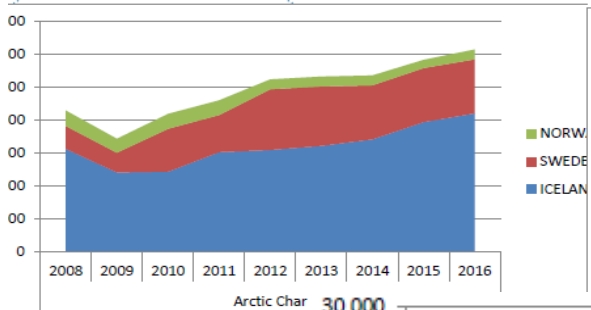
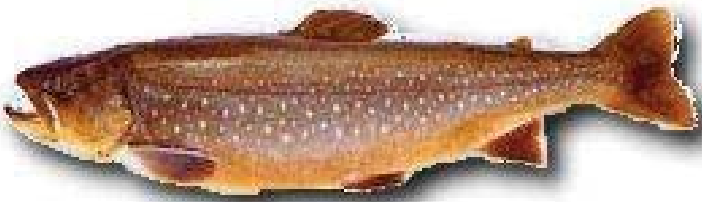
PRODUCTION (tons)		YEAR									
SPECIES	COUNTRY	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Sea Bream	TURKEY	31.670	28.362	28.157	32.187	30.743	35.701	41.873	48.000	67.612	
	GREECE	94.000	90.000	74.000	63.000	72.000	75.000	71.000	65.000	59.000	
	SPAIN	23.930	23.690	20.360	16.930	19.430	16.800	16.230	16.231	13.740	
	ITALY	9.600	9.600	9.600	9.700	8.700	8.400	8.200	7.360	7.600	
	CYPRUS	1.600	2.572	2.799	3.065	3.121	4.444	2.919	3.656	5.136	
	CROATIA	1.800	2.000	2.000	1.793	2.105	2.466	3.640	4.500	4.304	
	FRANCE	1.636	1.648	1.377	1.500	1.300	1.477	1.105	1.502	1.671	
	PORTUGAL	1.635	1.383	851	1.200	1.000	1.500	1.500	1.400	1.500	
<b>Total Sea Bream</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>	<b>160.563</b>	

SOURCE: FEAP - Mediterranean Aquaculture Commission

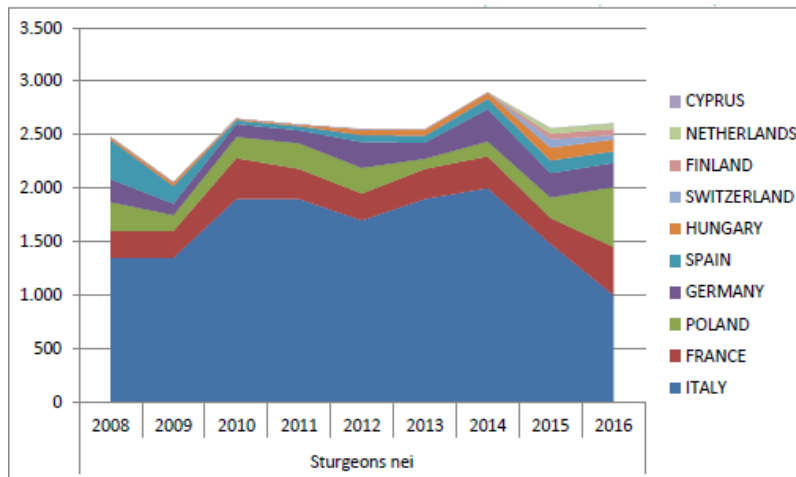
NOTE: Malta is not included due to lack of reliable data



# Arctic Char (6.144 t), Halibut (1.300 t) and Cod (0 t) production 2008-2016



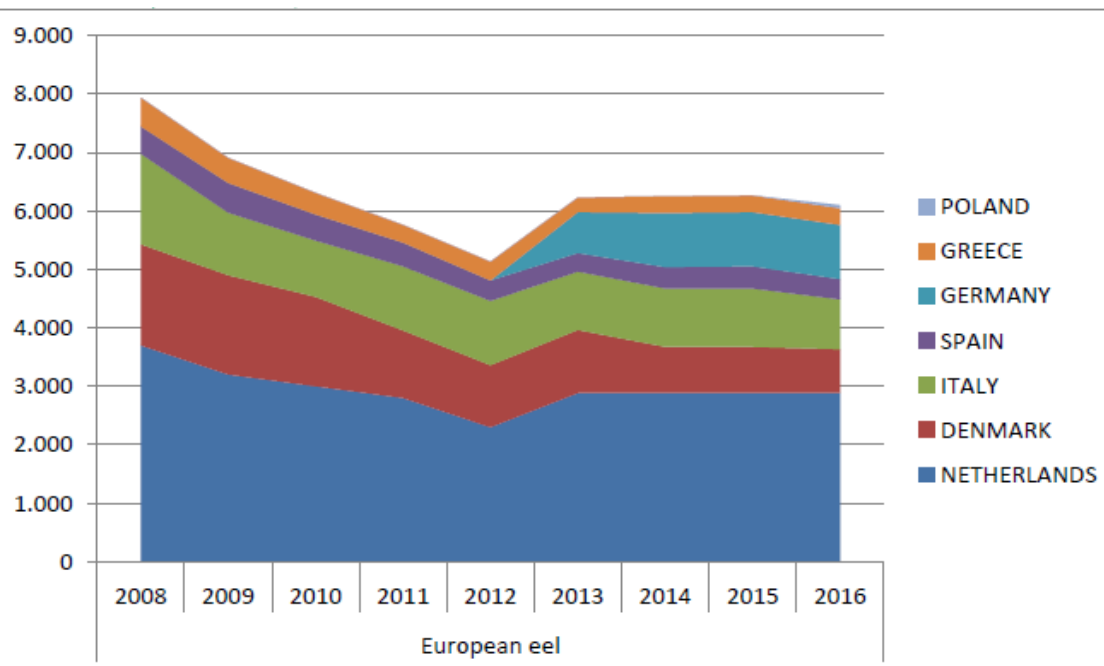
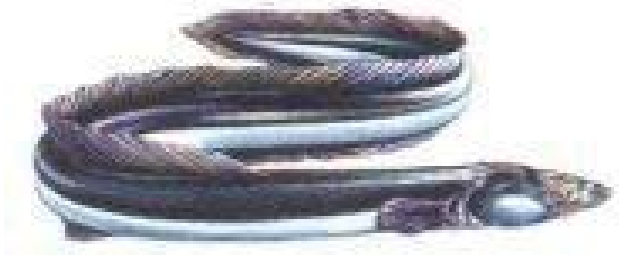
# Sturgeon (2.559 t) & caviar production (127 t) 2008-2016



SPECIES	COUNTRY	PRODUCTION (tons)	
		2015	2016
Caviar - Sturgeon	BELG.-LUXBG.	3	0
	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
Caviar - Sturgeon Total		109	124

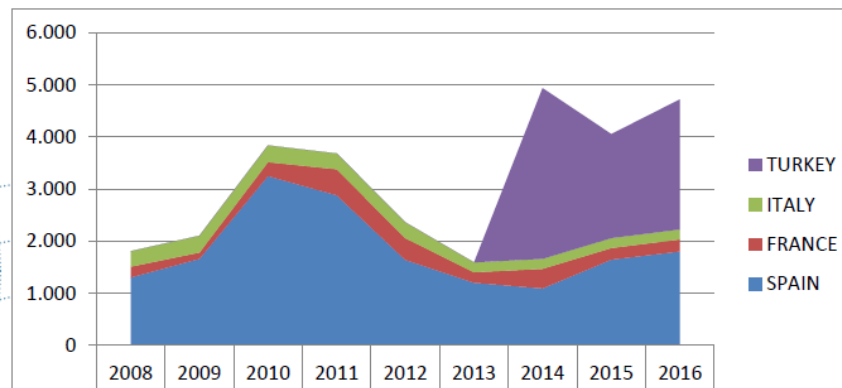
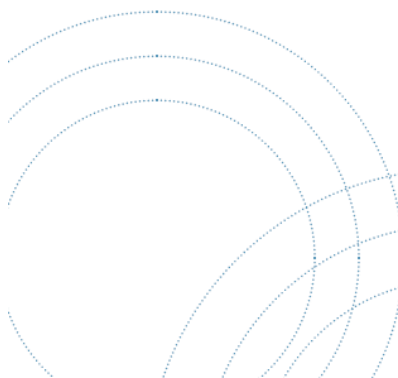
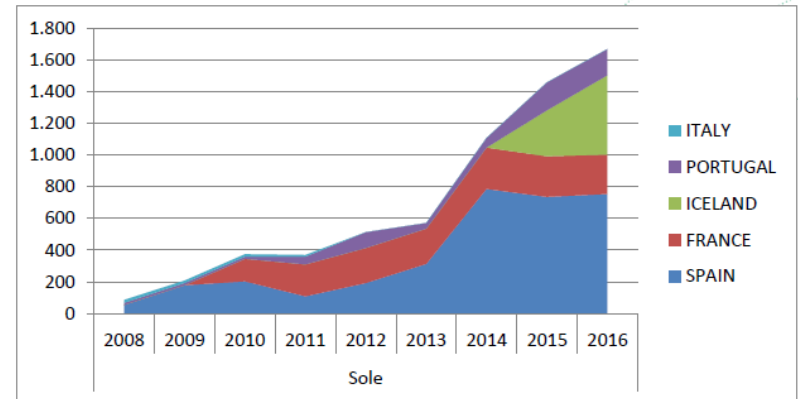
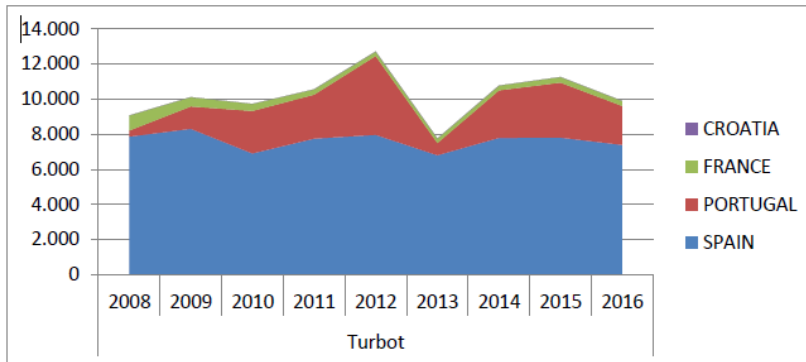


# Eel production (6.098 tons) 2008-2016



Pike-perch and perch  
no good data  
available.

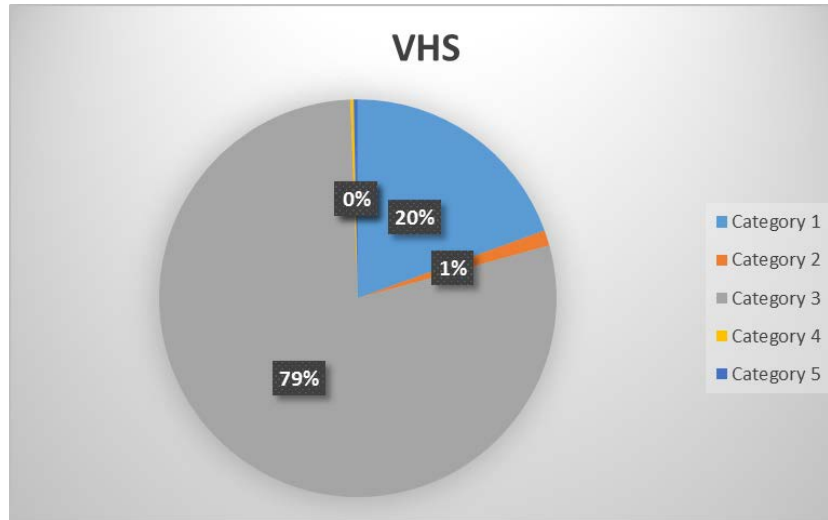
# Turbot (9.907 t.), sole (1.668 t.) & meagre (4.959 t) production 2008-2017



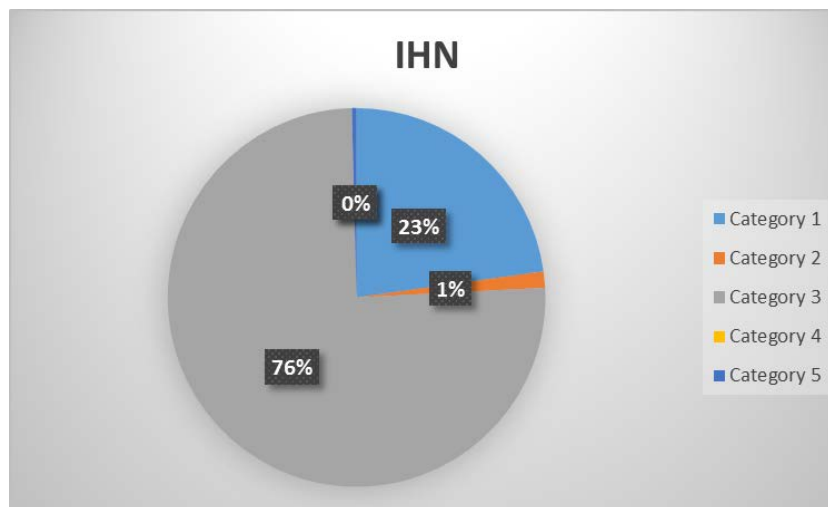
## Health categorization

- Very close to complete data in Europe on the number APB's with species susceptible to the listed diseases in approved zones and compartments
- Raw data in S&D report 2017 Annex 2

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

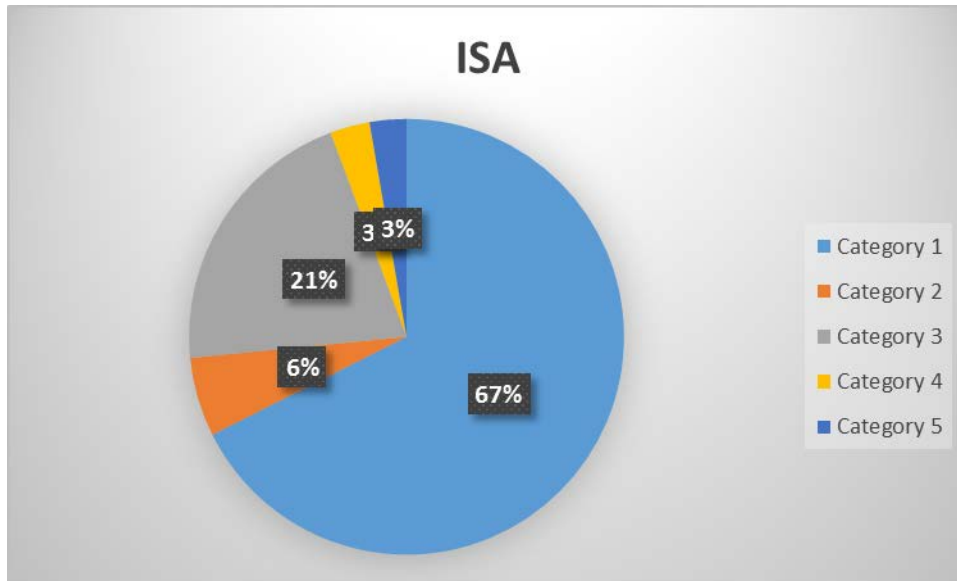


Comprising 12,743 fish farms



Comprising 11,473 fish farms

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

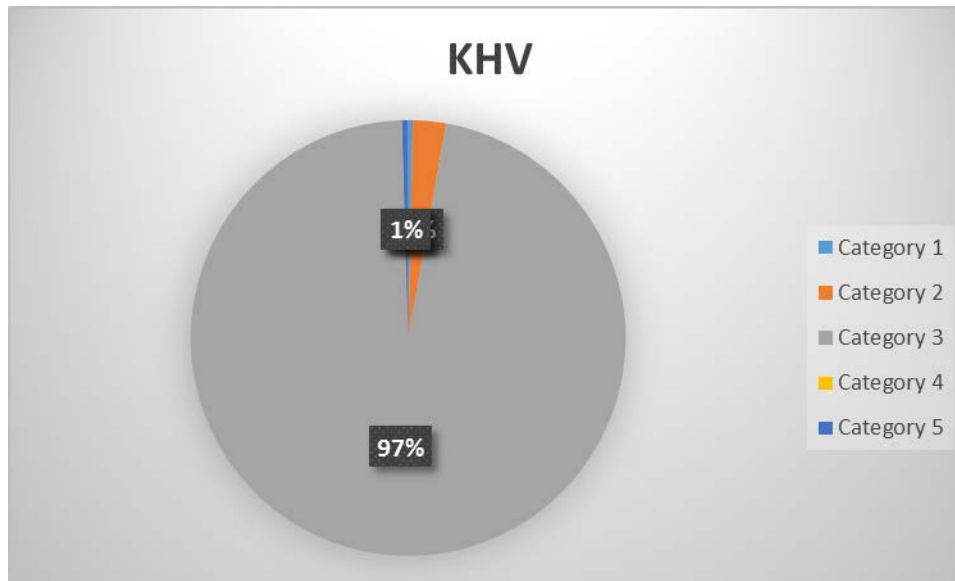


Comprising 6,519 salmonid fish farms

4,405 in Cat.1 and 1,361 in Cat.3

11 outbreaks in Norway (Cat. 4/5)

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



Comprising 11,225 cyprinid fish farms  
10,855 in Cat.III and only 39 in cat.I. But  
276 farms in control programs Cat II! And  
53 farms in Cat V

## Epidemiological data

- Report in the booklet and on web:
- [www.eurl-fish.eu](http://www.eurl-fish.eu)
- Content:
- Introduction and summary
- Reports from the individual countries
- Annex 1: Number of fish farms
- Annex 2: Categorization of farms
- Annex 3: Outbreaks of listed diseases
- Annex 4: Other disease problems
- Annex 5. Laboratory data (follow later)

### Report on Survey and Diagnosis of Fish Diseases in Europe 2017



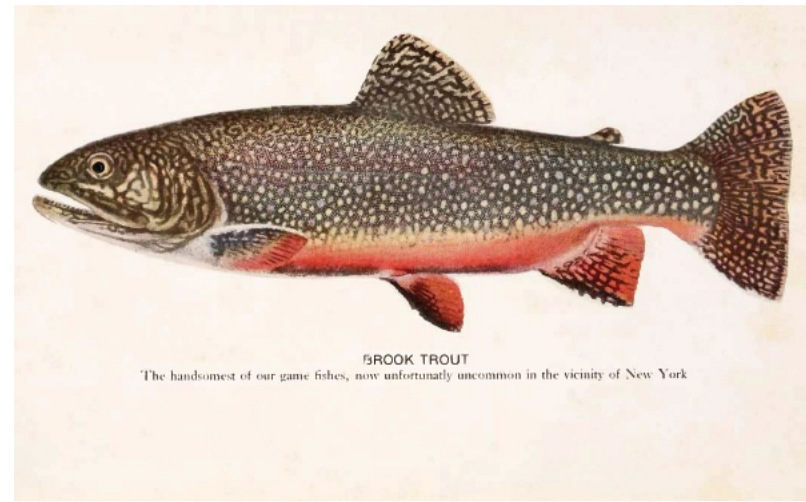
## VHS/IHN in Europe 2017



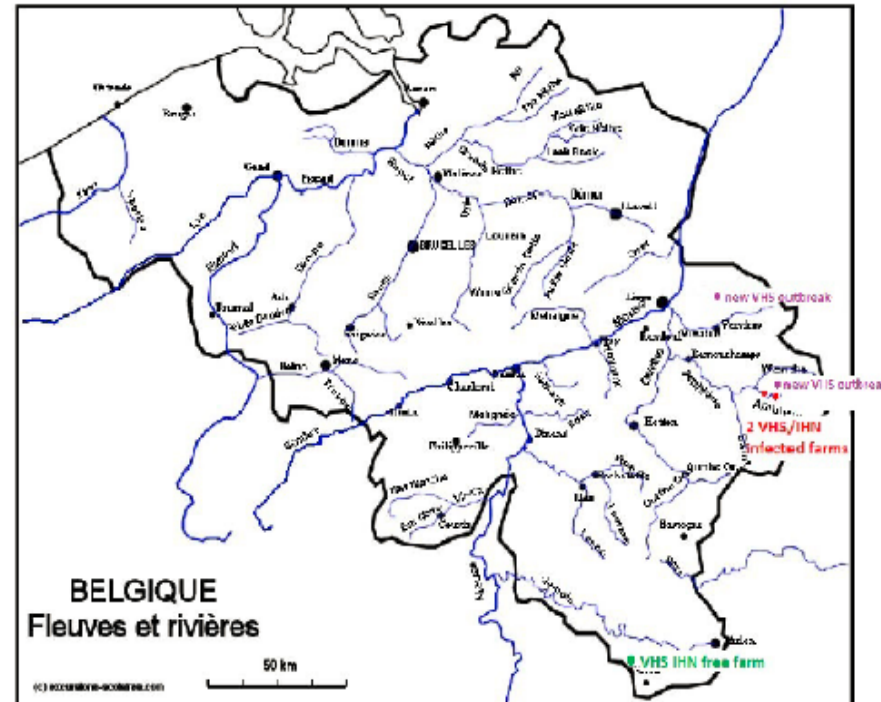
- a moderate increase in the number of **VHS** infected farms were observed with outbreaks **Belgium** in brook trout farm!
- , 9 new cases in **Bavaria**, a new outbreak of VHS in **Romania** and 3 outbreaks in **Czech Republic**.
- Decrease in severity observed in Mecklenburg-Western Pomeranian and 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 2017

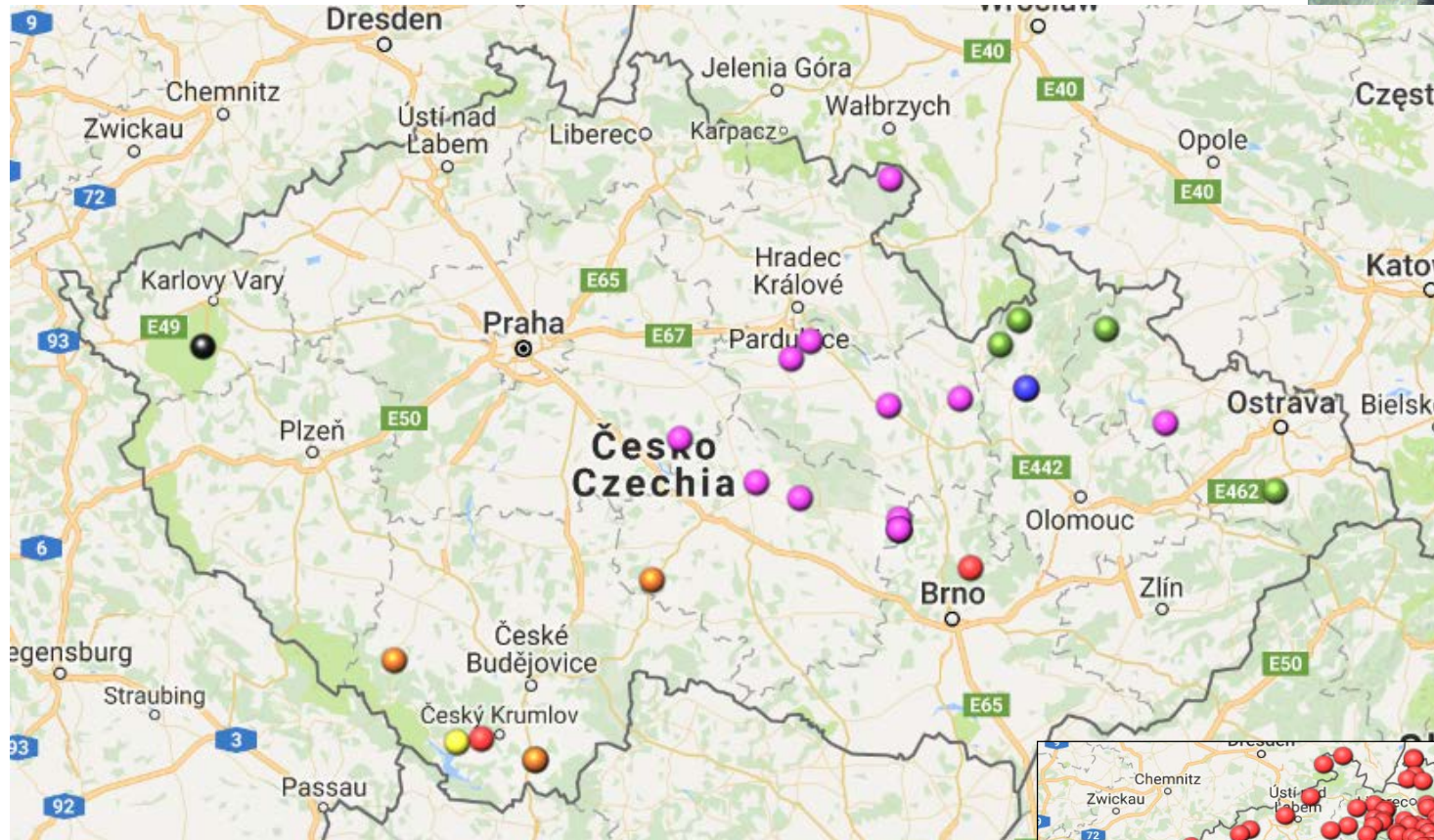


- 1 outbreak in brook trout fry with high mortality



# VHS in Czech Republic 2008-2017

## No new outbreaks in 2017!



## Estonia VHS/IHN control

- Following the VHS outbreaks in Estonia:

Programmes in 2017 there were 15 fish farms which took part in surveillance for VHS/IHN (14 fish farms in Category II and 1 fish farm in category I)

## Finland IHN outbreak

- IHN was diagnosed in Finland for the first time in 2017 in three farms and two put and take ponds.

# France

## VHS/IHN control

### Surveillance of VHS

- In 2017, VHSV was detected, without any clinical signs, in the framework of official sanitary controls. It occurred in a disease free farm located in the East of France
- 69% VHSV positive sera
- Surveillance of IHN  
Four outbreaks of IHN were detected through targeted surveillance in 2017 in Normandie.

## Germany

- Very detailed report on most länders concerning aquaculture production and their health status
- 32 VHS outbreaks, 5 IHN outbreaks and 136 KHV outbreaks. No reports on increases or decrease in VHS/IHN outbreaks
- Concerning KHV:
- Bavaria: There was a significant increase of KHV cases.  
Saxony: increase in severity regarding KHV-I

# Italy

- In Italy at present, there are 14 VHS and 12 IHN infected farms
- But also relatively many registered free farms



# Poland

- Poland has 16 VHS free compartments, 18 IHN free compartments and one KHV free farm
- In 2017 were reported 1 outbreaks of VHS, 4 outbreaks of IHN and 1 outbreaks of KHV.



## Slovenia

- In Slovenia, there are 233 salmonid and 85 cyprinid fish farms. Most of them have low production capacity. The annual production is 945 600 tonnes (kg????) of salmonids and 216 100 tonnes of cyprinids
- Recently the number of VHS/IHN declared free (Category I) farms has significantly increased and is now 20 farms. In addition, 14 fish farms are in the category II
- There are 5 VHSV infected, 22 IHNV infected and 14 KHV infected fish farms



## ISA in Europe 2016

- Norway reported 14 new sites with ISAV HPR $\Delta$  (Brit Hjeltnes – next) 2 more than in 2016.
- No other reports on ISA.
- Isavirus HPR0 no longer listed in EU legislation but is in OIE



## KHV in Europe 2017



- **Germany** reported increases in number of infected farms in Saxony and Rhineland-Palatina and 135 cases in all.
- In **Austria, Belgium, and Czech Republic, Denmark, Poland** and **Hungary** 4, 5, 3,1,1 and 3 cases were reported, respectively.
- In the **Netherlands** 9 cases were reported in open water carps.
- In **England and Wales** 30 outbreaks were reported in 2017 (33 in 2016).
- 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 IV), 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).
- Report on multiple findings and severe impact of PRV3 in RAS (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 (Britt B. Jensen Session II), 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).



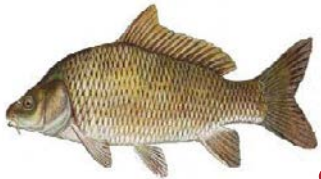
- In cleaner fish it is primarily vibriosis and *A. salmonicida*
- Lump fish: Problems with high mortality both in the production of juveniles and the use as cleaner fish in the salmon production. Flavivirus may be one of the problems, but ulcerations and bacterial infections may also kill a lot of fish. Perhaps too little knowledge about management is the most important challenge.

# Other fish diseases problems in Europe seabass and seabream



- In **seabass** and **seabream** it is primarily VNN/VER, Tenacibaculosis, *Vibrio harveyi* infection, *Lernathropus kroyeri* infection, Microcotylosis, Sparicotyle sp. and Rash syndrome

# Other fish diseases problems in Europe carp



- CEV still many new findings especially in Germany, Austria but no findings in NL
- SVC found in Romania
- *Aeromonas hydrophila* infection and high juvenile mortality
- CyHV-II (Goldfish herpes virus) in Prussian carp (*Carassius gibelio*) in Serbia



## Other specific findings and fish diseases problems in Europe

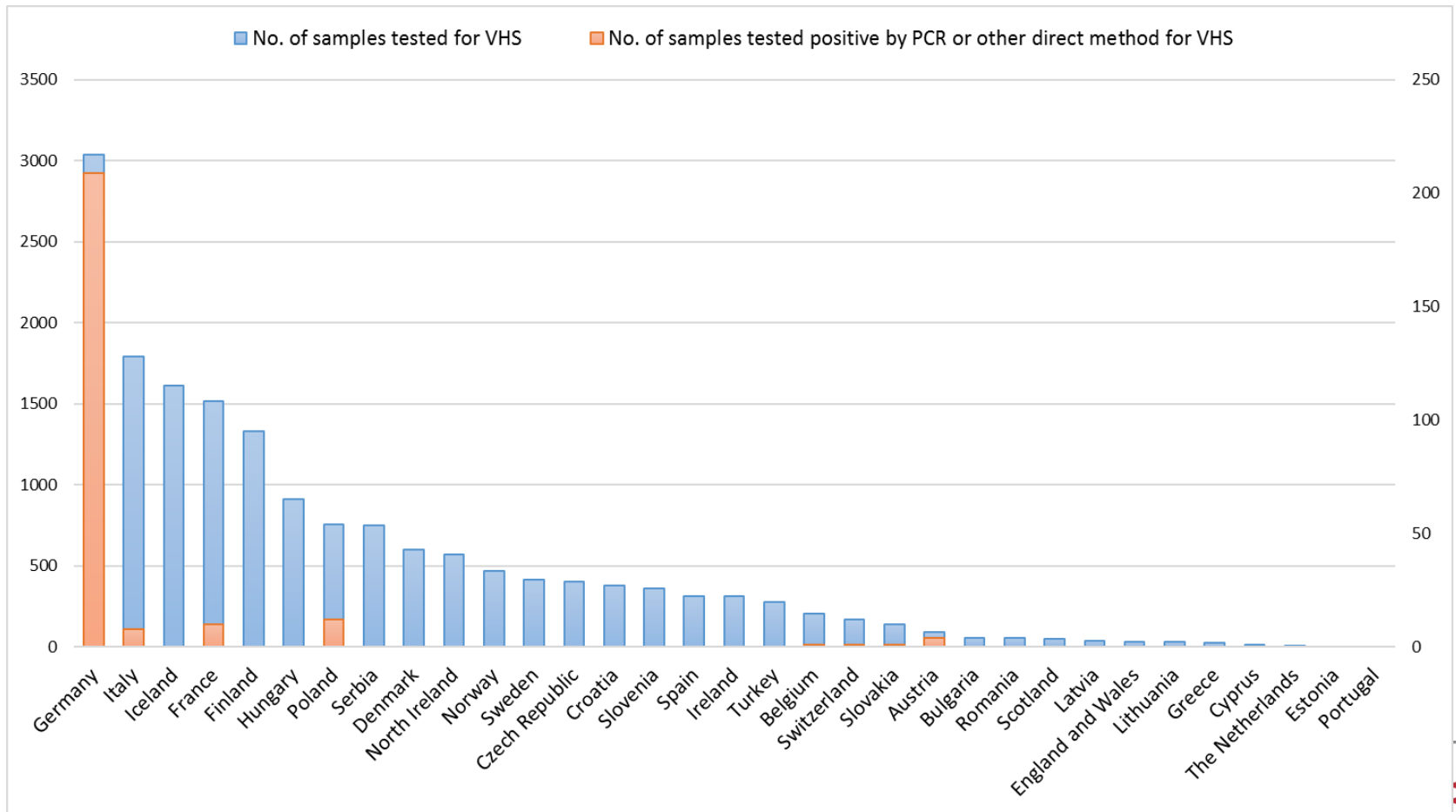


- BKD in RAS
- Flavobacteriosis- an increasing problem
- First case of IHN in Macedonia

Session I: Working groups- assessing the most important diseases

# Lab analysis

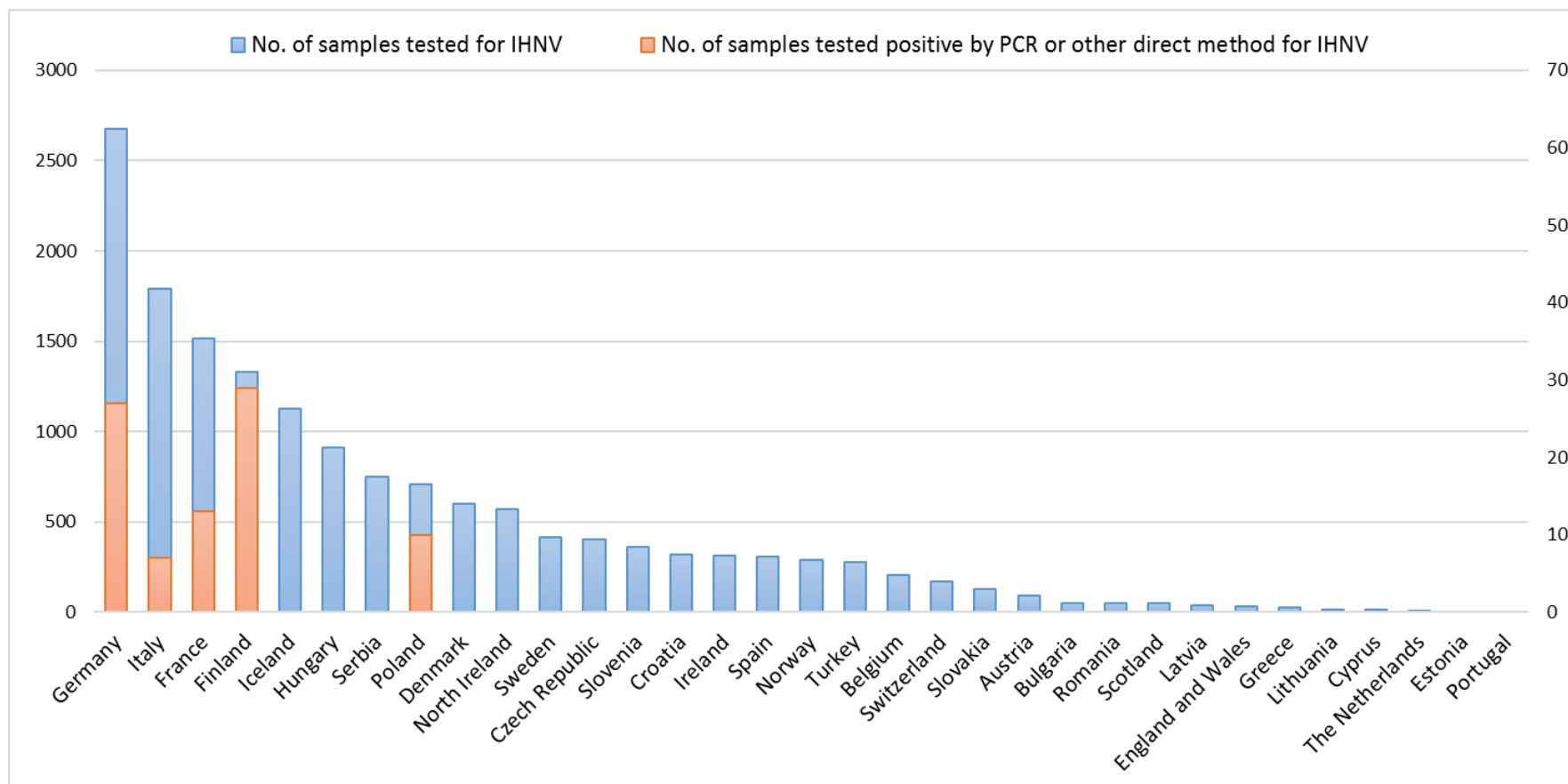
## 16,713 samples reported tested for VHSV in 2017





# Lab analysis

## 15,554 samples reported tested for IHN in 2016



# Conclusion on S&D 2017

- **Stable production in EU**
- **Unchanged/decreased 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 number of  
farms under surveillance**
- **Management problems in the production of lumpfish  
and wrasse**
- **Several ISA outbreaks in Norway**
- **Skin distress a major problem in RT production**
- **CEV still emerging disease but at a lower pace**

## 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)

under "Surveillance and diagnosis"

### Report on Survey and Diagnosis of Fish Diseases in Europe 2017



**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!**

