European Union Reference Laboratory for Fish and Crustacean Diseases

NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

EURL-Fish and Crustacean Diseases work done in 2018

Niels Jørgen Olesen

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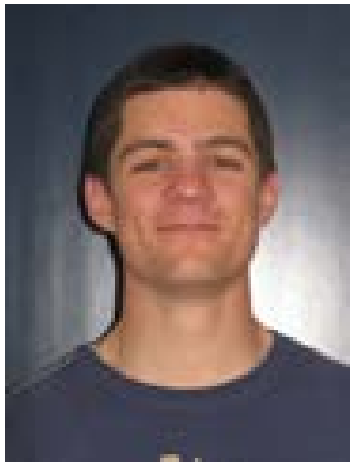

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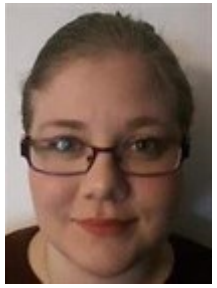

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EURL-Fish work program 2018-1

5 main objectives:

- **1. TO ENSURE AVAILABILITY AND USE OF HIGH QUALITY METHODS AND TO ENSURE HIGH QUALITY PERFORMANCE BY NRLs.**

1. *Annual workshop*
2. *Scientific working group*
3. *Proficiency test*
4. *Novel molecular methods*

2. TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO NRLs

1. *Training*
2. *Webpage*
3. *FishRefLabNet*
4. *Molecular epidemiology*
5. *Producing virtual teaching material (e-learning)*
6. *Missions*
7. *International meetings*

EURL-Fish work program 2018 -2

- **3. TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO THE EUROPEAN COMMISSION AND OTHER ORGANISATIONS**

1. *Diagnostic manuals*
2. *Survey and diagnosis*
3. *Emerging diseases*

- **4. REAGENTS AND REFERENCE COLLECTIONS**

1. *Pathogen library*
2. *Pathogen characterization*
3. *www.fishpathogens.eu*
4. *Production and supply of reagents*

- **5. REQUIREMENTS RELATED TO OTHER LEGISLATION**

1. *New animal health law*
2. *Listing susceptible species*

1-1 Organise and prepare for the 22nd Annual Workshop

European Union Reference Laboratory for Fish Diseases
National Institute of Aquatic Resources, Technical University of Denmark

Report of the
22nd Annual Workshop of the National Reference Laboratories for Fish Diseases

Kgs. Lyngby, Denmark
May 30th – 31st 2018

Lumpfish in experimental trial at DTU

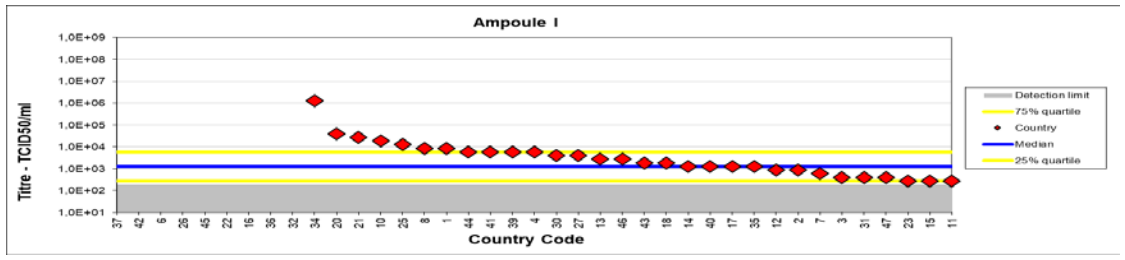
Dissection of fish during a 2017 EURL training course

Organized by the European Union Reference Laboratory for Fish Diseases,
National Institute of Aquatic Resources, Technical University of Denmark, Kgs. Lyngby

1-2 Organise scientific working group meetings

No meetings in 2018

1-3 Organise Proficiency tests



European Union Reference Laboratory for Fish and Crustacean Diseases
National Institute of Aquatic Resources, Technical University of Denmark

EURL for Fish Diseases

Report of the Inter-Laboratory Proficiency Test 2018

for identification and titration of

VHSV, IHNV, EHNV, SVCV and IPNV (PT1)

and identification of

CyHV-3 (KHV), SAV and ISAV (PT2)

Organised by the
European Union Reference Laboratory for Fish and Crustacean Diseases,
National Institute of Aquatic Resources, Technical University of Denmark,
Kgs. Lyngby, Denmark

DANAK
PT Reg. no.: 616

DTU

1-4 Novel molecular methods

For the EURL to have molecular diagnostic methods of the highest scientific standards and to be able to provide these methods to all Member State NRLs.

1. PRV-3 qPCR for surveillance purposes (validation of pooling procedures)

2. BKD: *Renibacterium salmoninarum* qPCR for surveillance purposes.

2-1 Training:

Facilitate and provide training in laboratory diagnosis: EURL training courses Copenhagen, October 8th - 19th 2018

Course 1: Methods for implementation of surveillance procedures for listed fish diseases

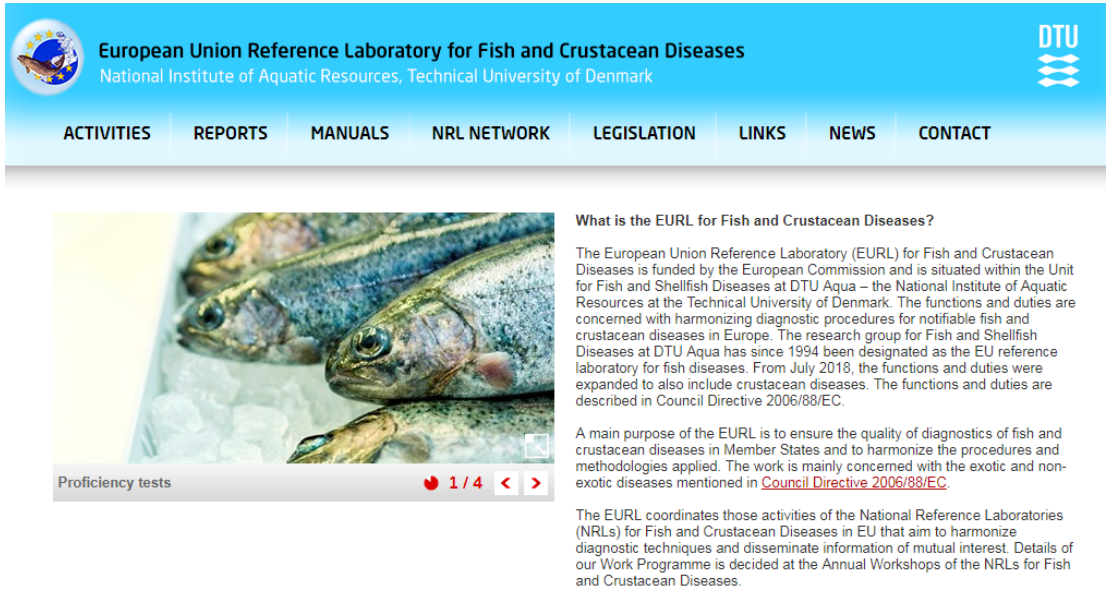
Course 2: Introduction to histopathology in fish and crustacean diseases

Sub-activity 2.2 Webpage

To provide the Member State NRLs with a fast entrance to information from the EURL.

www.eurl-fish.eu

The EURL website was constantly updated during 2018 with reports and news from the EURL. The website has been accessed 6.098 times; in total 18.882 pages of the website has been accessed during 2018.



2.3. FishRefLabNet.

To ensure that relevant and important information rapidly can get from the EURL directly to the Member State NRLs.

The e-mail list FishRefLabNet have been continuously updated during 2018 and now contain 145 people with interest in our work. The list now includes all the NRL contacts for the Crustacean Diseases.

2.4. Molecular epidemiology.

To improve knowledge on disease spreading mechanisms within the EU.

Molecular epidemiological analyses for Piscine orthoreovirus were done. PRV represents a treat to farmed salmonids in Europe.

For PRV-3 we studied its possible introduction in Europe in 2017, as well as its characterization, prevalence and molecular characteristics

2.5. Producing virtual teaching material (e-learning).

To provide the Member State NRLs with “hands on” videos to be used for teaching of staff members.

In 2018 the EURL created a YouTube channel called “EURL for fish disease”. This channels is used for uploading teaching material regarding proficiency testing and upcoming courses. Currently one video showing how to open proficiency test ampoules has been uploaded.

Link to the YouTube channel here

2.6. Missions. To ensure a high standard of diagnostic capabilities of all Member State NRLs.

A mission to the NRL in Norway was successfully organized in December 2018.

Laboratory visit at the
National Reference Laboratory for Fish Diseases

Norwegian Veterinary Institute Oslo - Norway
21st November 2018

2.7. International meetings.

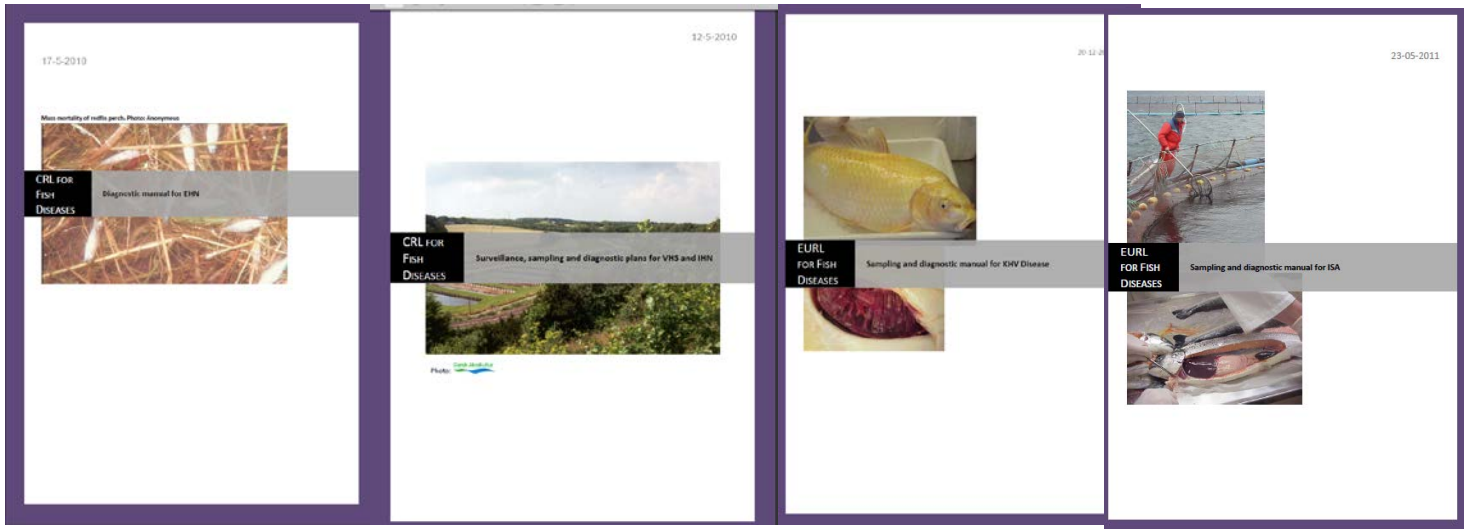
To keep the EURL updated on the newest scientific information on emerging and listed exotic and non-exotic fish diseases, and to disseminate knowledge and scientific data provided by the EURL.

EURL employees and members of the fish and crustacean unit at DTU participated in 9 international meetings and conferences and gave 23 oral presentations. The Unit authored 18 publications in Peer reviewed journals.

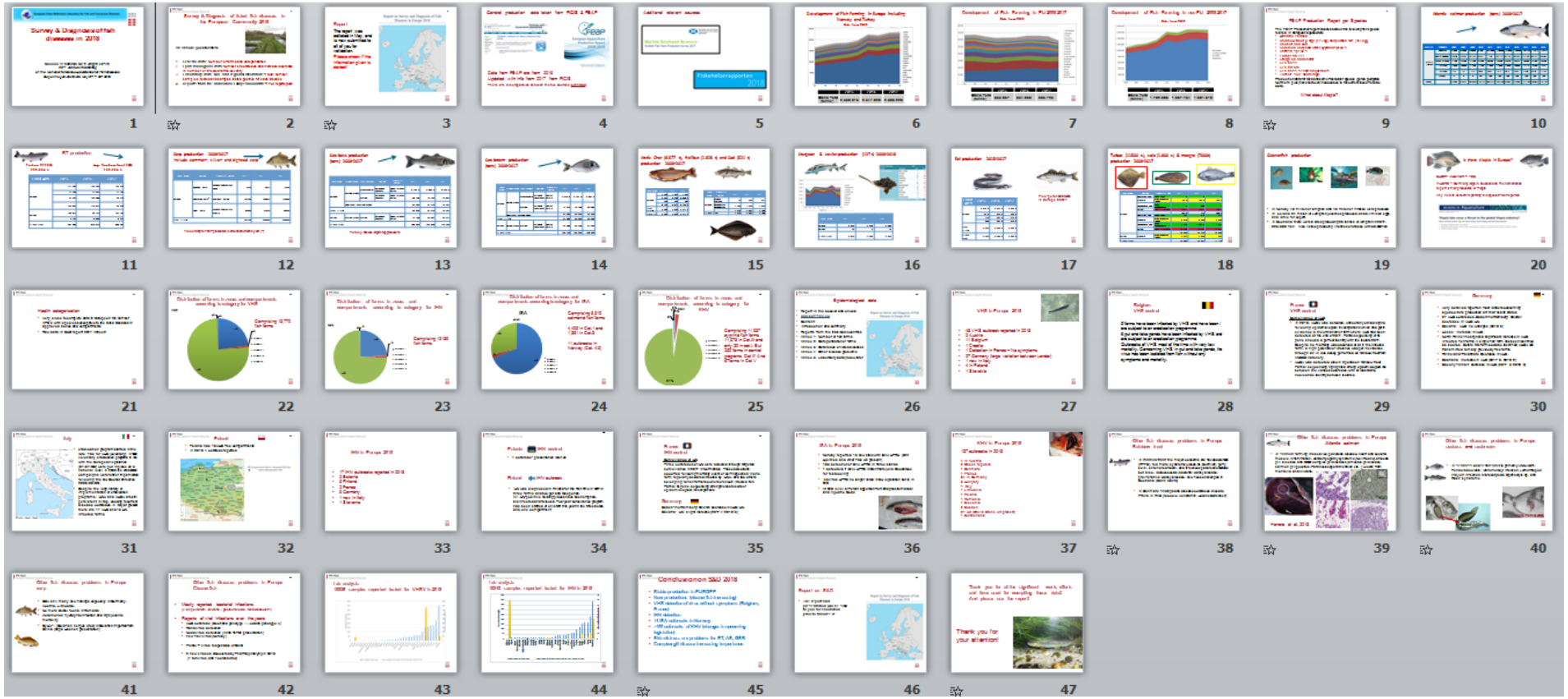
3. TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO THE EUROPEAN COMMISSION AND OTHER ORGANISATIONS

3.1. Diagnostic manuals.

To have updated diagnostic manuals for all listed fish diseases available for Member State NRLs on the EURL website www.eurl-fish.eu.



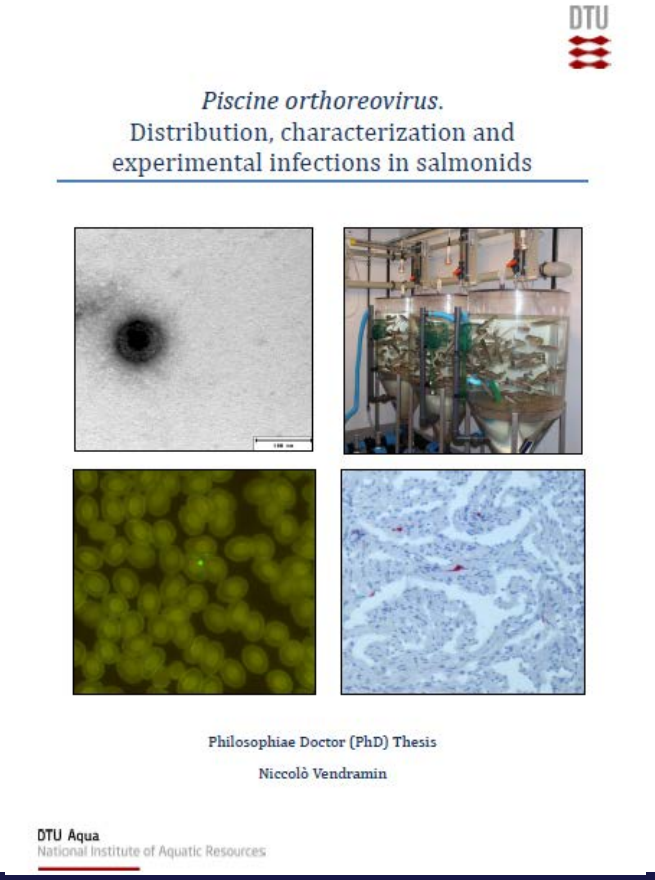
3.2. Survey and diagnosis. “collate and forward information on exotic and endemic diseases,that are potentially emerging in Community”



3.3. Emerging diseases.

For the EURL to have the most updated and highest scientific knowledge of emerging and re-emerging fish diseases in Europa

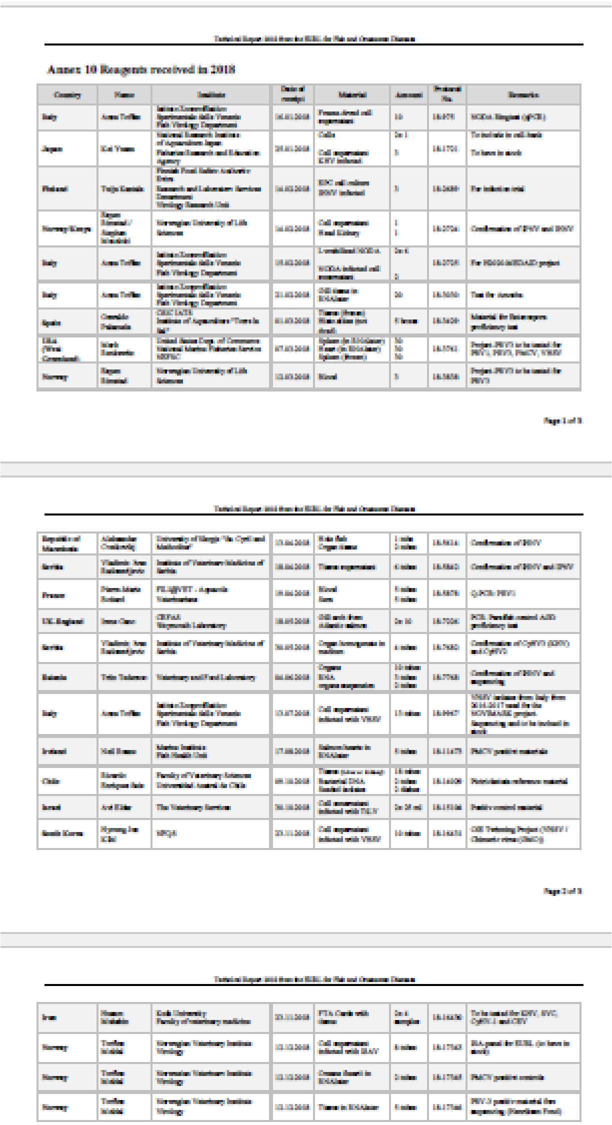
In 2018, activities on emerging diseases have focused on PRV-3 infection in salmonids



4. REAGENTS AND REFERENCE COLLECTIONS

4.1. Pathogen library. For the EURL for fish and crustacean diseases to have an updated library of crustacean pathogens relevant for the EURL and Member State NRLs.

The EURL received a large number of reagents and pathogens in 2018 (>250 units).


Annex 10 Reagents received in 2018

4.2. Pathogen characterization.

For the EURL to be able to identify and characterize isolates of listed viral fish pathogens on request from the Member State NRLs.

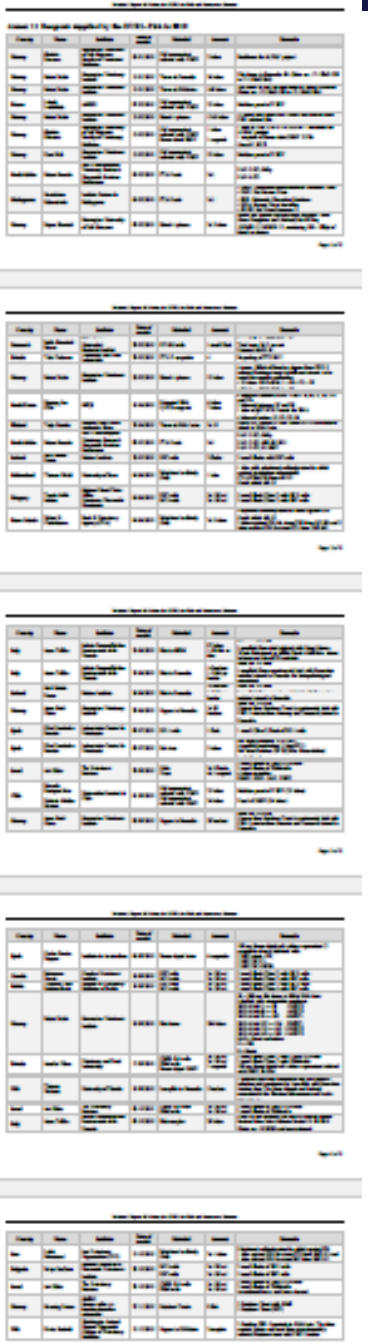
Support to NRLs in molecular characterization of IHNV isolates occurring in their country.

Infection trials were conducted with IHNV from Finland in order to assess and compare the Finnish IHNV virulence to rainbow trout.

Isolates from the first outbreak of IHN in Estonia in 2018 were likewise sequenced and characterized.

4.4. Production and supply of reagents. For the EURL to be able to quickly provide Member State NRLs with diagnostic reagents.

The EURL supplied a large number of pathogens and reagents to the NRL´s in EU Member states and related countries.



5.1. New animal health law. To prepare regulations related to the new animal health law.

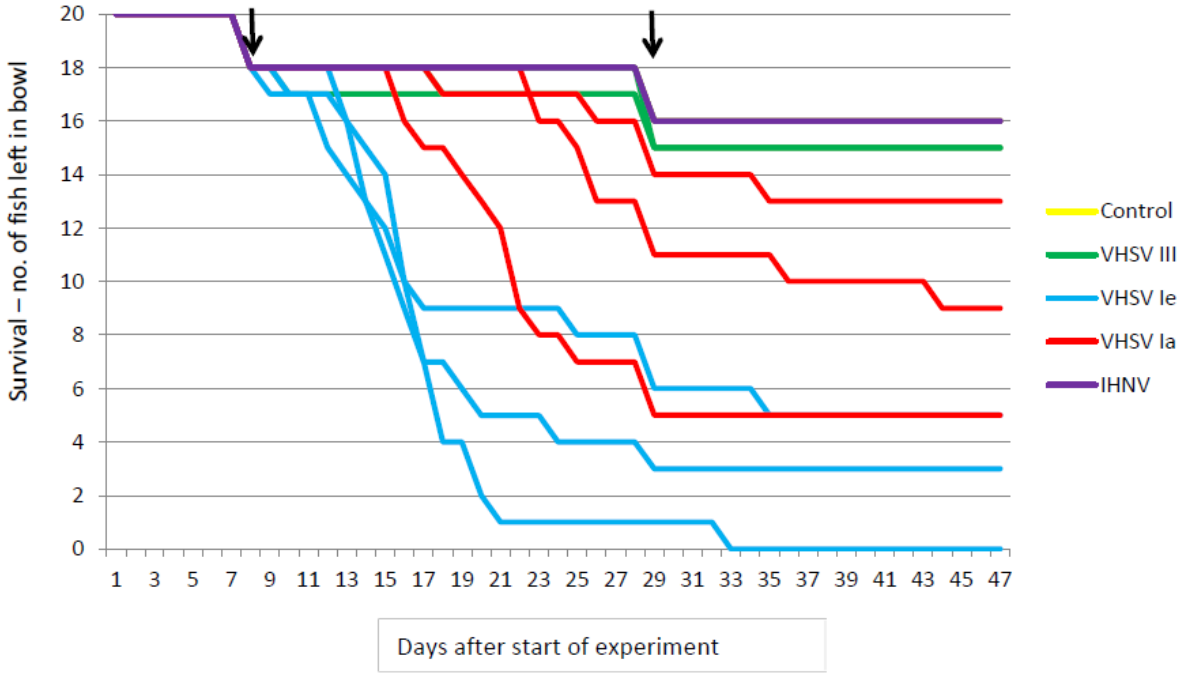
Giving advice to the content of delegated act, lists of susceptible species and consultancy concerning specific questions raised by the Member states to the Commission.

5.2. Listing susceptible species. For the EU Member States to have an updated list of susceptible species for the listed fish diseases

experimental infection trials were conducted on Sea bass juveniles with 1 IHNV and 4 VHSV isolates.

Figure 2: Bleeding in the cranial region of a sea bass infected with VHSV. The orange elastomer tag is also just visible below the dorsal fin.

Figure 1: Survival curves of sea bass injected with control medium, IHNV or VHSV. Arrows indicate days on which 2 fish where sampled from each bowl (except day 28 for two of the VHSV 1e bowls where few fish remained).



Thank you for your attention