



European Union Reference Laboratory for Fish and Crustacean Diseases

NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

EURL-Fish work done in 2020

Niels Jørgen Olesen



European Union Reference Laboratory
for Fish and Crustacean Diseases

NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

**Technical Report
2020**

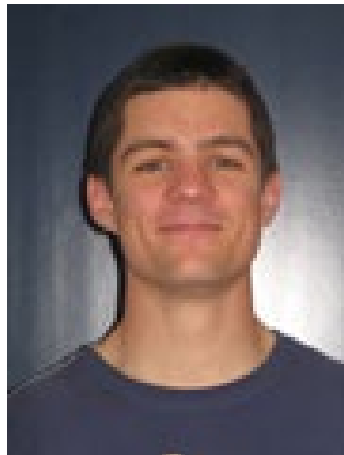
from the
**European Union Reference Laboratory
for Fish and Crustacean Diseases**



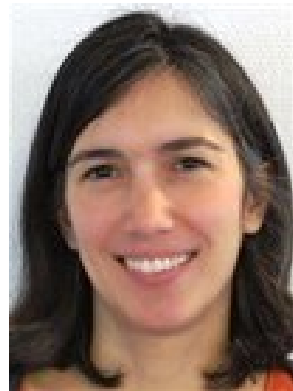
National Institute of Aquatic Resources
Technical University of Denmark
Kgs. Lyngby, Denmark



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Petersen



Teena Klinge



Kári Karbech Mouritsen



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Professor



Dagoberto Sepulveda
Post Doc.



Jakob Skov
Post Doc.



Irina Vardia
Technician



Inger Dalsgaard
Ass. Professor
Retired emeritus

EURL-Fish work program 2019-2020

5 main objectives:

- **1. TO ENSURE AVAILABILITY AND USE OF HIGH QUALITY METHODS AND TO ENSURE HIGH QUALITY PERFORMANCE BY NRLs.**
- **2. TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO NRLs**
- **3. TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO THE EUROPEAN COMMISSION AND OTHER ORGANISATIONS**
- **4. REAGENTS AND REFERENCE COLLECTIONS**
- **5. REQUIREMENTS RELATED TO OTHER LEGISLATION**

1-1 Organise and prepare for the 24th Annual Workshop for Fish diseases



European Union Reference Laboratory for Fish and Crustacean Diseases
NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

Report of

Special session for NRL's on new Animal Health Law

4th November 2020

National Institute of Aquatic Resources
Technical University of Denmark
2800 Kgs. Lyngby, Denmark



European Union Reference Laboratory for Fish and Crustacean Diseases
NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

Report of the
24th Annual Workshop of the National Reference
Laboratories for Fish Diseases

Kgs. Lyngby, Denmark
November 4th – 5th 2020



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

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

1-2 Organise scientific working group meetings

Working groups were organized on listing susceptible species to infection with listed fish and crustacean diseases, respectively.

European Union Reference Laboratory for Fish and Crustacean Diseases
NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK



SCIENTIFIC OPINIONS AND RECOMMENDATIONS FOR LISTING FISH SPECIES SUSCEPTIBLE TO INFECTION WITH LIST A, C AND E DISEASES ACCORDING TO EU/2018/1882

Expert group on listing species susceptible or vectors for EU listed Aquatic Animal diseases

MEMBERS OF THE EXPERT GROUP

<p>Niels Jørgen Olsen Professor Public Sector Consultancy Unit for Fish and Shellfish Diseases EU Reference Laboratory for Fish and Crustacean Diseases OIE Reference laboratory for VHS – Denmark njolo@aqu.dtu.dk</p>	<p>Niccolò Vendramin Coordinator of the EURL for fish and crustacean diseases Myndighedsbetjeningssekretariatet DTU Aqua - Denmark nivva@aqu.dtu.dk</p>	<p>Edmund Peeler MSc PhD MRCVS Epidemiologist Aquatic Pests and Pathogens, Barrack Road, Weymouth, Dorset, DT4 8UB - UK ed.peeler@cefas.co.uk</p>
<p>Anna Toffan, DVM PhD National Reference Laboratory for Fish Diseases Istituto Zooprofilattico Sperimentale delle Venezie Viale dell'Università 10, 35020 Legnaro (Padova) - Italy atoffan@izsvenezie.it</p>	<p>Thierry MORIN Unit Viral Fish Diseases, National Reference Laboratory for listed Fish Diseases, French Agency for Food, Environmental and Occupational Health & Safety - France Thierry.MORIN@anses.fr</p>	<p>Atle Lillehaug Senior scientist Research Section – Biosecurity and New Diseases Norwegian Veterinary Institute Oslo - Norway atle.lillehaug@vgtinst.no</p>
<p>Morten Schiøtt Senior Researcher DTU AQUA - Unit for Fish and Shellfish Diseases Kamitorvet Bygning 202 DK-2800 Kgs. Lyngby - Denmark morsch@aqu.dtu.dk</p>		<p>MEMBERS OF THE EXPERT GROUP</p> <p>Prof Grant D Steinford, FRC Path FLS Animal and Human Health Theme Lead Centre for Environment, Fisheries and Aquaculture Science (Cefas) Weymouth Laboratory Weymouth Dorset DT4 8UB United Kingdom Phone: +44(0)1305 206722 grant.steinford@cefas.co.uk https://www.cefas.co.uk/centres-of-excellence/aquatic-animal-health/</p> <p>Dr Kelly Bateman Crustacean Health Theme Lead OIE Collaborating Centre for Emerging Aquatic Animal Diseases Cefas, Barrack Road, The Nothe, Weymouth, Dorset, DT4 8UB, UK Phone: +44 (0)1305 206735 Mobile: +44 (0)7976 842636 kelly.bateman@cefas.co.uk https://www.cefas.co.uk/centres-of-excellence/aquatic-animal-health/designation/cis-collaborating-centre-for-emerging-aquatic-animal-disease/</p> <p>Dr Tobias Pretto, DVM PhD NRL for Fish, Mollusc and Crustacean Diseases Istituto Zooprofilattico Sperimentale delle Venezie Viale dell'Università, 10 - 35020 Legnaro (PD) - Italy Phone: +39 049 8084459 T.Pretto@izsvenezie.it</p>

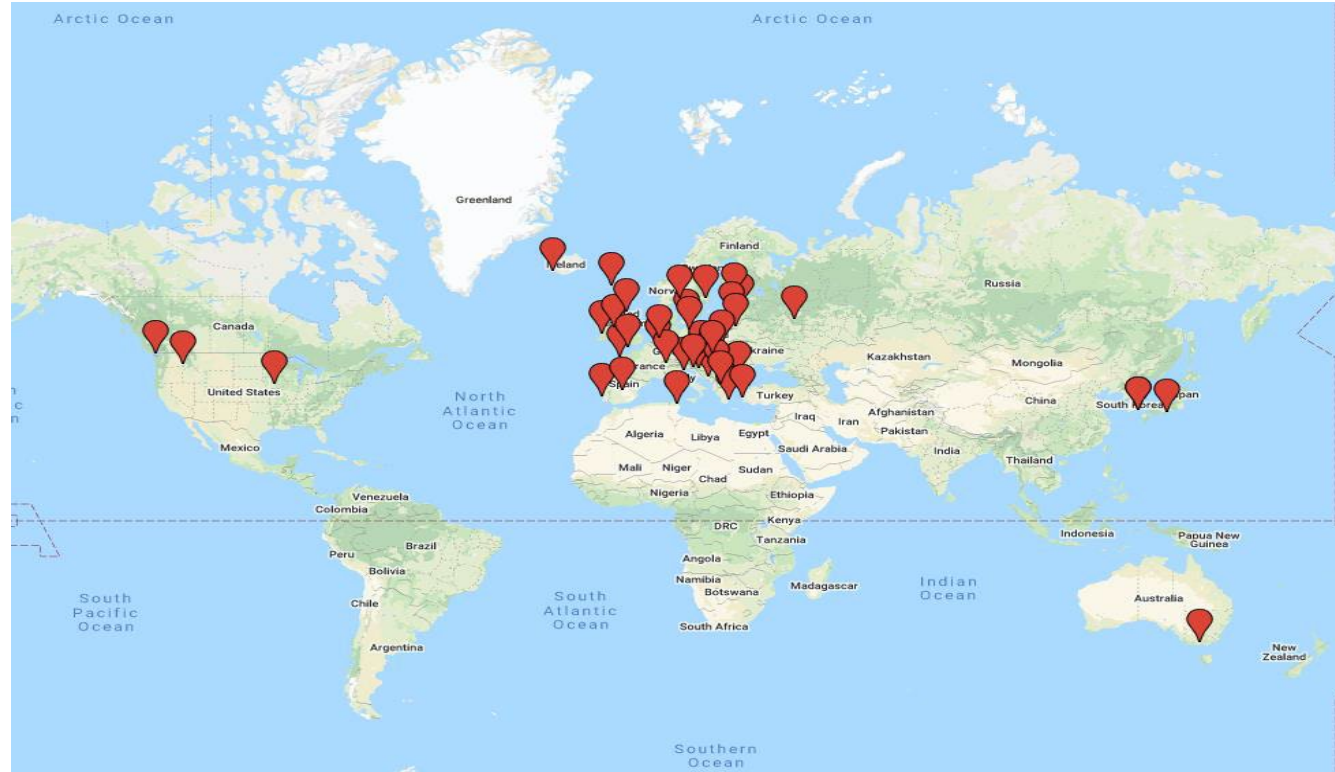
EXPERT GROUP REPORT

ON ASSESSMENT OF CRUSTACEAN SPECIES SUSCEPTIBLE TO INFECTION WITH LIST A AND C DISEASES ACCORDING TO EU/2018/1882

<p>Dr Morten Schiøtt Senior Researcher DTU AQUA - Unit for Fish and Shellfish Diseases Kamitorvet Bygning 202 DK-2800 Kgs. Lyngby Phone: +45 40 41 98 10 E-mail: morsch@aqu.dtu.dk</p>	<p>Prof Niels Jørgen Olsen Unit for Fish and Shellfish Diseases EU Reference Laboratory for Fish and Crustacean Diseases Unit G2 - Animal Health and Welfare B 232 03/37 Kamitorvet Bygning 202 DK-2800 Kgs. Lyngby Phone: +45 29 24 43 10 E-mail: njolo@aqu.dtu.dk</p>	<p>Dr Fiona Geoghegan Directorate-General for Health and Food Safety (DG SANTE) Directorate G - Crisis management in food, animals and plants Unit G2 - Animal Health and Welfare B 232 03/37 Phone: +32-2-29 63275 E-mail: fiona.geoghegan@ec.europa.eu</p>
<p>Dr Niccolò Vendramin Senior Researcher Coordinator of the EURL for fish and crustacean diseases Myndighedsbetjeningssekretariatet DTU AQUA - Unit for Fish and Shellfish Diseases Kamitorvet Bygning 202 DK-2800 Kgs. Lyngby E-mail: nivva@aqu.dtu.dk</p>		

1-3 Organise Proficiency tests

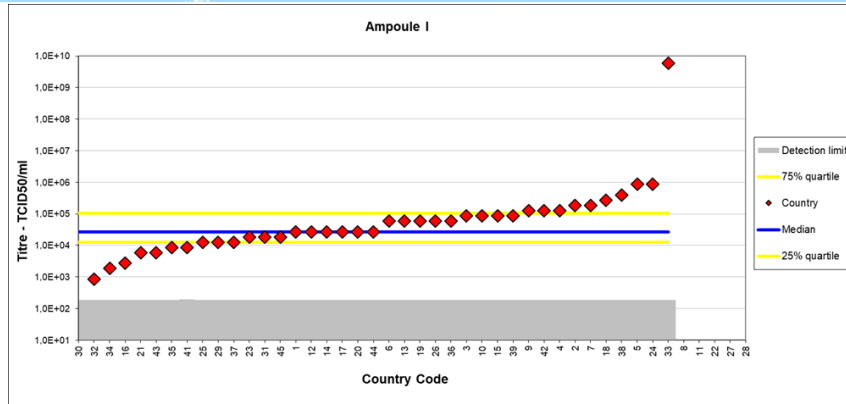
PT1 and PT2, 44 and 43 laboratories respectively participated



EURL for Fish Diseases

Report of the Inter-Laboratory Proficiency Test 2020
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



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.

In 2020 the following new diagnostic PCR methods were introduced in the laboratory:

RT-qPCR for PRV-3

PCR for CEV for sequencing

qPCR for detection of Yellowhead Virus Genotype 1

qPCR for White Spot Syndrome Virus has been accredited

RT-qPCR for Infectious Haematopoietic Necrosis Virus in one-step reaction has been accredited

Manuscript published:

“Analytical validation of one-step real-time RT-PCR for detection of infectious hematopoietic necrosis virus (IHNV)” Argelia Cuenca^{1*}, Niccolò Vendramin¹, Niels Jørgen Olesen¹

2-1 Training:

Facilitate and provide training in laboratory diagnosis:

EURL training course Copenhagen, October 5th - 9th 2020

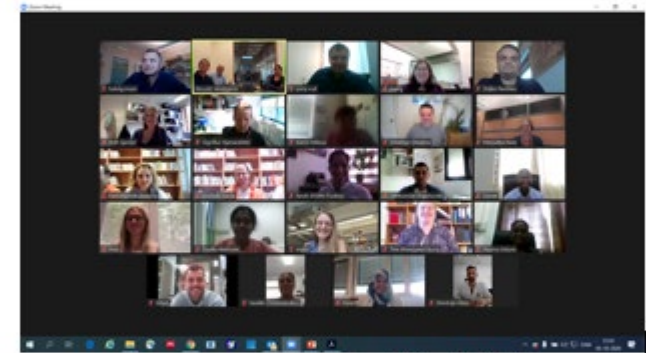
Course 1: Methods for implementation of surveillance procedures for listed fish diseases

Course 2 was cancelled due to COVID19: I

The two courses are accredited to grant ECTS at PhD level to the participants.

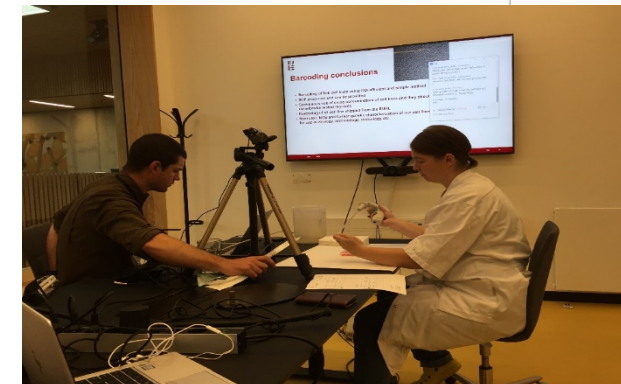


**EURL Training Course on
Methods for implementation of surveillance
procedures for listed fish diseases**



Copenhagen, October 5th - 9th 2020

Hosted by the European Union Reference Laboratory for Fish and Crustacean Diseases

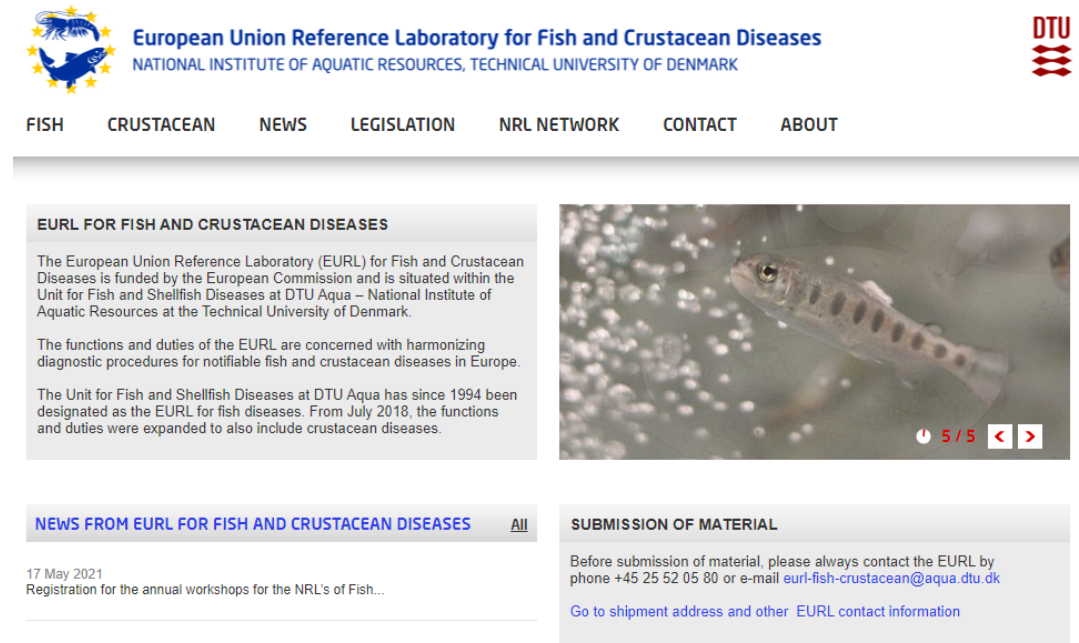


Sub-activity 2.2 Webpage

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

www.eurl-fish-crustacean.eu

The EURL website has gone through a substantial re-structuring and update. It now compiles the information on the activities by both the EURL for fish and crustacean diseases. The website has been accessed 5.445 times; 17.210 pages have been accessed in 2020.



The screenshot shows the homepage of the European Union Reference Laboratory for Fish and Crustacean Diseases. The header includes the DTU logo and the text "European Union Reference Laboratory for Fish and Crustacean Diseases" and "NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK". A navigation menu contains links for FISH, CRUSTACEAN, NEWS, LEGISLATION, NRL NETWORK, CONTACT, and ABOUT. The main content area features a section titled "EURL FOR FISH AND CRUSTACEAN DISEASES" with a text block and a video player showing a fish. Below this is a "NEWS FROM EURL FOR FISH AND CRUSTACEAN DISEASES" section with a date of 17 May 2021 and a link to "Registration for the annual workshops for the NRL's of Fish...". To the right, there is a "SUBMISSION OF MATERIAL" section with contact information and a link to "Go to shipment address and other EURL contact information".

European Union Reference Laboratory for Fish and Crustacean Diseases
NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK

FISH CRUSTACEAN NEWS LEGISLATION NRL NETWORK CONTACT ABOUT

EURL FOR FISH AND CRUSTACEAN DISEASES

The European Union Reference Laboratory (EURL) for Fish and Crustacean Diseases is funded by the European Commission and is situated within the Unit for Fish and Shellfish Diseases at DTU Aqua – National Institute of Aquatic Resources at the Technical University of Denmark.

The functions and duties of the EURL are concerned with harmonizing diagnostic procedures for notifiable fish and crustacean diseases in Europe.

The Unit for Fish and Shellfish Diseases at DTU Aqua has since 1994 been designated as the EURL for fish diseases. From July 2018, the functions and duties were expanded to also include crustacean diseases.

NEWS FROM EURL FOR FISH AND CRUSTACEAN DISEASES [All](#)

17 May 2021
Registration for the annual workshops for the NRL's of Fish...

SUBMISSION OF MATERIAL

Before submission of material, please always contact the EURL by phone +45 25 52 05 80 or e-mail eurl-fish-crustacean@aqu.dtu.dk

[Go to shipment address and other EURL contact information](#)

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 2020 and now contain 167 people with interest in our work. The list also includes all the NRL contacts for the Crustacean Diseases.

2.5. International conferences and meetings

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

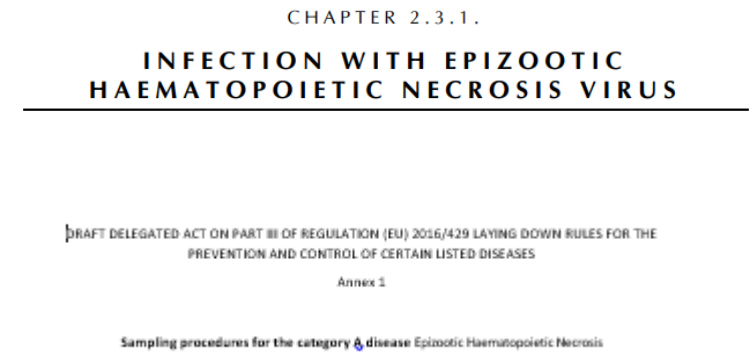
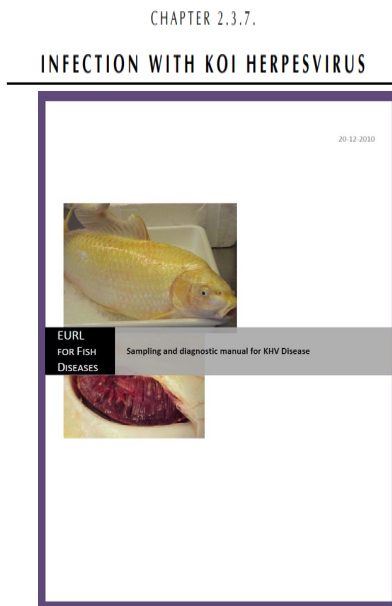
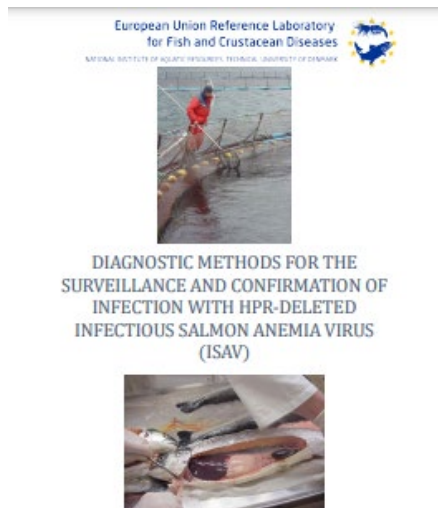
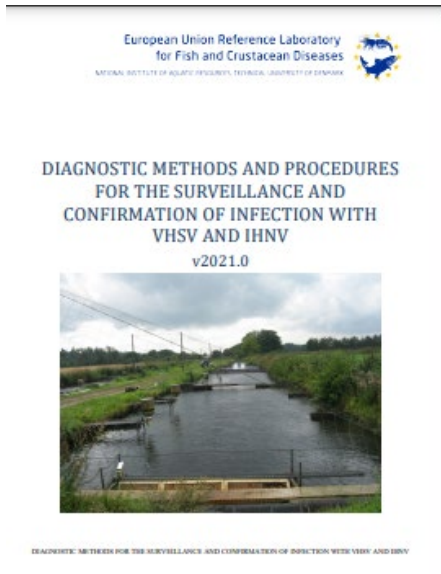
Due to COVID19 the EURL team only attended and contributed with scientific talks to few international conferences and meetings within the field in 2020.

The Unit with EURL team members authored 20 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"

European Union Reference Laboratory for Fish and Crustacean Diseases
 NATIONAL INSTITUTE OF AQUATIC RESOURCES, TECHNICAL UNIVERSITY OF DENMARK



Report on Survey and Diagnosis of Fish Diseases in Europe 2020



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.

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.

Material received from 6 countries in 11 parcels and shipped to 10 in 20 parcels

Please help us updating the repositories, in order to maintain an EU wide repository of Fish pathogen isolates.



Annex 4.2 Reagents received at the EURL for fish and crustacean diseases in 2020

Country	Name	Institute	Date of receipt	Material	Amount	Protocol No.	Purpose
Norway	Espen Rønning	Norwegian University of Life Sciences (NMBU)	09.01.2020	Fish - hole	2	20-336	Research
Northern Ireland	Paul Savage	Agri-food and Biosciences Institute	15.01.2020	Fishskin	6	20-518	Confirmation of MLO by Q-PCR
Croatia	Sajezana Zmčić	"Croatian Veterinary Institute Laboratory for Fish and Molluscs diseases"	12.05.2020	Cell supernatant Homogenat Cell supernatant 1st pass	2 vials 2 tubes 2 tubes	20-3660	Confirmation of IHNV
Norway	Mona Gjøesing	Norwegian Veterinary Institute	26.05.2020	Gill Kidney	1 tube 1 tube	20-4093	Confirmation KHV (and CEV)
Norway	Hanne Nielson	Norwegian Veterinary Institute Fish diseases bacteriology and pathology	19.06.2020	Gill in RNA later	4 tubes	20-4943	To be tested for CEV
Norway	Mona Gjøesing	Norwegian Veterinary Institute Section for Fish Health and Biosecurity	01.09.2020	Skin Gill Kidney	1 tube 1 tube 1 tube	20-7026	To be tested for CEV and KHV
Norway	Torfinn Moldal	Norwegian Veterinary Institute Virology	29.09.2020	Purified DNA/RNA	2 tubes	20-7863	Confirmation of KHV and CEV
Republic of North Macedonia	Alaksandar Trajčevski	Faculty of veterinary medicine - Skopje (FVMS) Biology and Pathology of Fish, Honey Bees and Wildfowl	05.10.2020	RBT fry (whole)	11 tubes	20-8107	Confirmation of IHNV
Italy	Anna Toffin	Istituto Zooprofilattico Sperimentale delle Venezie	10.11.2020	Organ in RNA later	4 tubes	20-9358	Research VHS vaccination PRV-3 Q-PCR + BKD
Italy	Anna Toffin	Istituto Zooprofilattico Sperimentale delle Venezie	10.11.2020	Organ in RNA later	3 tubes	20-9359	Research VHS vaccination PRV-3 Q-PCR
France	Nadege Hochart	Copalis Industrie	02.07.2020	Fish food	4 samples	20-5706	To be tested for WSSV



Annex 4.3 Reagent supplied by the EURL for Fish and Crustacean Diseases in 2020

Country	Name	Institute	Date of receipt	Material	Amount	Specifics
Denmark	Verica Šušter	The Institute for Veterinary Clinical Studies Department of Veterinary and Cell Culture	20.01.2020	PTA Cards	1 tube	1 PTA card 1 VHS 1 BKD 1 IHNV 1 CEV 1 VHSV
Hungary	Anna Toffin	National Food Chain Safety Office Veterinary Diagnostic Diagnostic Laboratory of Virology	14.02.2020	New Infected Fish cells	2x 25ml	1x 25ml bottles with new infected SF-21 cells (2020) and new infected SF-21 cells (2021)
United Kingdom	Veronica Collins	SEVENSTAR (UK) COMPANY LTD	01.04.2020	Enriched DNA	1x 25ml	Enriched DNA
Norway	Hanne Nielson	Norwegian Veterinary Institute	04.07.2020	Blood serum Organ in RNA later Fish tissue in RNA later Fish blood	10 tubes 17 tubes 10 tubes 10 tubes	Blood serum 10 tubes 10 tubes 10 tubes 10 tubes
France	Delia Chikara	Food & Veterinary Sciences (FVS) National Reference Laboratory for Fish Diseases	14.07.2020	Fish tissue in RNA later or RLT buffer Fish blood in RNA later or RLT buffer	10 tubes 10 tubes	10 tubes 10 tubes
Hungary	Veronica Šušter	National Food Chain Safety Office Food Chain Safety Veterinary Diagnostic Laboratory of Pathology, Fish and Fish Diseases	18.07.2020	Freeze-dried fish skin	6 packages	1x 100 mg 1x 100 mg 1x 100 mg 1x 100 mg 1x 100 mg 1x 100 mg



Country	Name	Institute	Date of receipt	Material	Amount	Specifics
Denmark	Verica Šušter	INTERNATIONAL CENTRE OF AQUACULTURE Department of Pathology of Aquatic Organisms National Reference Laboratory for Fish and Crustacean Diseases	10.07.2020	Cell suspension infected with VHSV or IHNV	2x 25ml	1x 25ml bottles with new infected SF-21 cells (2020) 1x 25ml bottles with new infected SF-21 cells (2021)
Denmark	Verica Šušter	INTERNATIONAL CENTRE OF AQUACULTURE Department of Pathology of Aquatic Organisms National Reference Laboratory for Fish and Crustacean Diseases	03.07.2020	Enriched VHS + BKD	2x 25ml	1x 25ml bottles of Enriched VHS + BKD 1x 25ml bottles of Enriched VHS + BKD
Italy	Anna Toffin	Istituto Zooprofilattico Sperimentale delle Venezie	11.07.2020	Fish vaccine	1 tube	4 ml of adjuvanted fish vaccine containing active attenuated VHSV (VHSV) based on Vero cells and inactivated VHSV (VHSV) based on Vero cells and inactivated VHSV (VHSV)
Norway	Hanne Nielson	Norwegian Veterinary Institute	21.07.2020	Skin in RNA later	11 tubes	10 tubes 1 tube



Country	Name	Institute	Date of receipt	Material	Amount	Specifics
France	Verica Šušter	ANSES Food Safety and Food Quality Department National Reference Laboratory for Fish, Aquatic and Crustacean Pathogen-Prion Laboratory Virology Reference Unit	20.08.2020	IFA and DNA	1 tube	1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA
Bulgaria	Eliza Nedelcheva	National Reference Laboratory for Fish, Aquatic and Crustacean Pathogen-Prion Laboratory Department of Fish Diseases	20.08.2020	New Infected Fish cells	2x 25ml	1x 25ml bottles with new infected SF-21 cells (2020) and new infected SF-21 cells (2021)
Poland	Magdalena Biedrzycka	National Reference Laboratory for Fish Diseases Department of Fish Diseases	10.08.2020	New Infected Fish cells	2 tubes	2x 25ml bottles (2x 25 ml) with new infected SF-21 cells
Canada	Elyse Gerret	Pathology & Clinical Diagnostics Aquatic Animal Health Section Pacific Biological Station	09.08.2020	Fish tissue in RNA later	4 tubes	4 tubes 4 tubes 4 tubes 4 tubes
Canada	Elyse Gerret	Pathology & Clinical Diagnostics Aquatic Animal Health Section Pacific Biological Station	14.11.2020	Fish tissue in RNA later	7 tubes	7 tubes 7 tubes 7 tubes 7 tubes 7 tubes 7 tubes 7 tubes
France	Verica Šušter	ANSES Food Safety and Food Quality Department National Reference Laboratory for Fish, Aquatic and Crustacean Pathogen-Prion Laboratory Virology Reference Unit	14.11.2020	IFA and DNA	1 tube	1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA 1x 1 ml of IFA and DNA

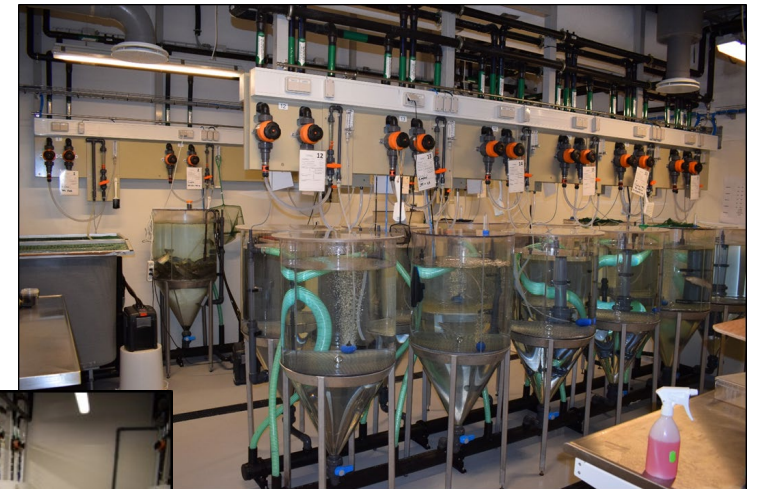


Country	Name	Institute	Date of receipt	Material	Amount	Specifics
Spain	Elisa Sánchez	Centro Veterinario de Diagnóstico y Referencia Epidemiológica Laboratorio de Diagnóstico y Referencia Epidemiológica	14.10.2020	Agar 1000 Agar 1000	1 tube 1 tube	0.5 ml of Polychaete Culture and VHS 0.5 ml of Polychaete Culture and VHS 0.5 ml of Polychaete Culture and VHS 0.5 ml of Polychaete Culture and VHS
Italy	Anna Toffin	University of Udine	27.10.2020	Skin in RNA later	11 tubes	11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes 11 tubes
UK	Magdalena Biedrzycka	SEVENSTAR (UK) COMPANY LIMITED	01.12.2020	Enriched DNA	10 tubes	10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes 10 tubes
Denmark	David Pearson	Norwegian Veterinary Institute	14.12.2020	Agar culture	2 tubes	2 small bottles (2x 25 ml) with new infected SF-21 cells

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.



4.1 The database www.fishpathogens.eu

To have an updated database of all serious viral fish pathogens in the EU.

Albeit the work put into the development, maintenance and curation of the databases, the statistics of the access to the fishpathogens website show that there is a low interest from the international community to submit records to the databases, and to use the information provided on it.

It was therefore decided to remove the databases for IHNV, SAV and Betanodavirus from the main Fish pathogen databases. The part regarding VHSV will be maintained for internal use and for sharing upon request.

FISH PATHOGENS DATABASE



The Fish Pathogens Database is a platform for sharing of information on isolates of fish pathogens.

[Go to the Fish Pathogens Database](#)



Fish Pathogens Database

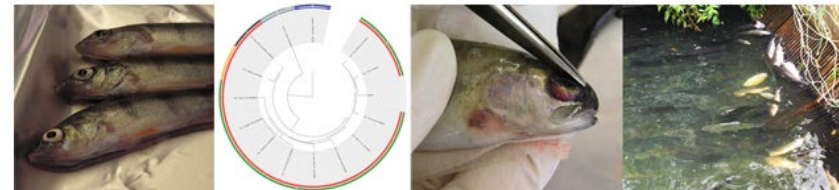
Fishpathogens.eu offer a platform for sharing of available information on isolates of fish pathogens and their sequences to facilitate research on fish pathogens. The databases are free to use, but require subscription. One subscription covers all databases.

We encourage laboratories from all around the world to submit data of fish pathogens isolated in their laboratory, including as much isolate information as possible as well as genetic information if the isolate has been sequenced. It is not a requirement for upload to the database that the isolate has been sequenced.

For terms and conditions for using the database, please see [Terms and Conditions](#). For information on how to use Fishpathogens.eu, please see the [F.A.Q.](#)

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- Betanodavirus »
- IHNV »
- SAV »
- VHSV »



25th Annual workshop

31st May + 1st-2nd June 2021 all virtual!

Three workshops back to back, on fish and crustacean diseases, respectively.



EURL Workplan 2021

Only a 1-year program

1. **PT 1 and PT2:** No major changes
2. **Annual Workshop 2021:** virtual access only!.
3. **Training course(s) 2021:** two virtual courses will be held in wk 41 and/or 42 one on diagnostic procedures and one on histopathology.
4. **Emerging fish diseases** (like POMV-infection, CMS in salmonids, TiLV in tilapia) will be studied
5. **Scientific assessment of the effect of pooling samples for surveillance and diagnostics by PCR and provision of guidelines on how to pool.**
6. All **Diagnostic Manuals** will be updated and ready on www.eurl-fish-crustacean.eu by 21st April 2021:
 - i. Infection with HPR-deleted ISAV is finalised, Done
 - ii. VHS and IHN finalized and uploaded, Done
 - iii. Infection with KHV will be updated - delayde
 - iv. Infection with EHNV will be updated and aligned with the OIE Aquatic Manual delayed.

EURL Workplan 2022??

1 or 2-year program

1. **PT 1 and PT2:** No major changes maybe change of material from cell culture to tissue from infected fish.
2. **Annual Workshop 2022:** This time MUST be face to face or a combination!.
3. **Training course(s) 2022:** two face-to face courses will be held in wk 41 and/or 42 one on diagnostic procedures and one on histopathology.
4. **Quality assurance:** provide help for implementing in NRL's (SOPs, visits etc.)
5. **Emerging fish diseases** (What to come?) The new development of IHN in EU shall be addressed carefully and will be studied- herunder update of the diagnostic procedures (RT-qPCR)
6. **Scientific assessment of the effect of pooling samples for surveillance and diagnostics by PCR and provision of guidelines on how to pool.**
7. **Use of fetal calf serum concentration for propagating virus**
8. **Further update of Diagnostic manual**
9. **Proposals for topics are VERY welcome!**

26th Annual workshop

30th and 31st May + 1st June 2022 at DTU Aqua in Lyngby, Denmark. Likely a combination of face to face and virtual.

Two workshops back to back, on fish and crustacean diseases, respectively. Maybe again a closed session for the NRLs in EU and EFTA.



End of 25th Annual workshop of NRL's for Fish Diseases 2021

Important! Please give us feed back as soon as possible by filling the evaluation scheme send to all of you.

Upon request we will send you a signed certificate of participation.

Thank you for all the excellent presentations, valuable questions and contributions and for participating in this workshop

We are looking forward seeing you soon again
Hopefully face to face 😊 !

