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

Report of the

16th Annual Workshop of the National Reference Laboratories for Crustacean Diseases

Kgs. Lyngby, Denmark

May 28th 2025

Organized by the European Union Reference Laboratory for Fish and Crustacean Diseases,

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

Contents

Introduction and short summary

The 16th Annual Workshop of the National Reference Laboratories for Crustacean Diseases was held on 28th of May 2025. There were 34 participants attending the workshop in person, representing 21 countries.

The workshop was held back-to-back with the 29th Annual Workshop for National Reference Laboratories for Fish Diseases and a special session for NRLs in EU and EEA on the implementation of the Animal Health Law.
The workshop was opened with “Welcome and announcements” by section leader for fish and shellfish diseases at DTU Aqua, Britt Bang Jensen. The first session had the title “Update on EU listed crustacean diseases and their control” and started with Head of the EURL for Fish and Crustacean Diseases Niccoló Vendramin giving an update on the disease and surveillance situation of crustacean diseases in EU countries based on the results obtained from the Survey and Diagnosis questionnaire. This was followed by a talk from an invited speaker, Paolo Gamberoni, Alfred Wegener Institute (AWI), Germany on shrimp aquaculture in Europe – its status, prospects and the role of networking.

The second session had the title: “Results from ongoing research on crustacean diseases”. Shyam K Uthaman from DTU Aqua gave a talk on AI-powered Shrimp disease detection probe for real-time monitoring for improved welfare and farming efficiency. Later on, NRL Representative from Finland, Tiina Korkea-Aho provided a lecture on studies on crayfish plaque *Aphanomyces astaci* genotype D in northern noble crayfish. Then an invited speaker from Italy, Tobia Pretto from IZSVE gave a presentation on *Hematodinium perezi* detection in blue crab (*Callinectes sapidus*) and its seasonal prevalence in northern Adriatic lagoons. Finally, the session was concluded with a talk from Heike Schmidt-Posthaus from University of Bern, Switzerland on 35 years of *A. astaci* genotype groups in Switzerland.

Session III had the title “Update from the EURL for Crustacean Diseases” and started with Shyam K Uthaman, EURL Crustacean co-ordinator who gave a talk on the participation and expected results of the interlaboratory proficiency tests for crustacean diseases in 2025. Finally, Head of EURL for fish and crustacean diseases Niccoló Vendramin presented the EURL activities in 2024 and plans for 2025.

Lone Madsen and Anna Luisa Farias Alencar from DTU Aqua took minutes from the meeting, and Shyam K Uthaman assembled the report.

We would once again like to thank all the presenters for their great contributions; without them the meeting would not have been a success. The workshop and meeting were organized by Niccoló Vendramin and Shyam K Uthaman, with the help from the rest of the fish and shellfish diseases section at the National Institute of Aquatic Resources, DTU Aqua. The meeting next year is planned to be held online at the end of May 2026.

We wish to thank all of you for participating and we are looking forward to seeing you next year.

Shyam K Uthaman

Programme

Wednesday May 28th
Annual Workshop of the National Reference Laboratories for Crustacean Diseases

9.15 – 9:40	Welcome and announcement *Britt Bang Jensen, DTU, Denmark*
SESSION I:	**Update on EU listed crustacean diseases and their control** ***Chair:*** *Britt Bang Jensen and* ***Minutes:*** *Anna Luiza Farias Alencar*
09:40 – 10:00	Survey and diagnosis of shrimp production and diseases in Europe 2024 *Niccoló Vendramin, DTU, Denmark*
10:00 – 10:20	Shrimp aquaculture in Europe: status, prospects, and the role of networking *Paolo Gamberoni, AWI, Germany*
SESSION II:	**Results from ongoing research on crustacean diseases** ***Chair:*** *Shyam K Uthaman and* ***Minutes:*** *Lone Madsen*
10:20 – 10:40	AI-powered Shrimp disease detection probe for real-time monitoring for improved welfare and farming efficiency – A proof-of-concept *Shyam K Uthaman, DTU, Denmark*
10:40 – 11:00	Studies on crayfish plaque *Aphanomyces astaci* genotype D in northern noble crayfish *Tiina Korkea -Aho, FFA, Finland*
11:00 – 11:20	*Hematodinium perezi* detection in blue crab (*Callinectes sapidus*) and its seasonal prevalence in northern Adriatic lagoons *Tobia Pretto, IZSVE, Italy*
11:20 – 11:40	**Coffee Break**
11:40 – 12:00	Determining 35 years of *Aphanomyces astaci* genotype groups in Switzerland *Heike Schmidt-Posthaus, UNIBE, Switzerland*
SESSION III:	**Update from the EURL for crustacean diseases**
12:00 – 12:20	EURL proficiency test for crustacean diseases 2025 *Shyam K Uthaman, DTU, Denmark*
12:20 – 12:40	EURL Work done in 2024 and ideas and plans for 2025 *Niccoló Vendramin, DTU, Denmark*
	Next meeting and end of 16th Annual Workshop

******End of meeting******

SESSION I: Update on EU listed crustacean diseases and their control

Chair: Britt Bang Jensen

Surveillance and diagnostics of crustacean diseases in Europe 2024

Niccolò Vendramin and Thomas Weise

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Abstract

As part of being the EURL for crustacean diseases, we see it as our obligation to collect and disseminate data on the disease situation for crustacean production in Europe. To that end we send out an inquiry to all European NRLs for crustacean diseases to:

1) Report the number of farms belonging to each health status according to COMMISSION DELEGATED REGULATION (EU) 2020/689.

2) Report any outbreaks in the country of EU listed crustacean diseases, as well as health problems related to other crustacean diseases.

3) Report the number of samples tested for WOAH listed crustacean diseases and how many of these gave a positive result.

4) Describe the current status of crustacean aquaculture in the country, as well as the strategy used for surveillance of crustacean diseases.

Data from 16 countries have so far been obtained and will be compared to the data received for since 2019.
An overview of health situation of crustacean farmed in Europe and trends will be discussed.

Question: Was the situation with the explosion of numbers of the blue crab discussed in the mollusc's workshop?

Tobia: In some lagoons, producers limited the production of manila clam due to this explosion. Some producers are trying to get back. New way of producing is the challenge in Italy production now.

Comment: Regarding WSSV in crayfish, there is a new study from Croatia where they found WSSV in crayfish without clinical signs.

Shrimp aquaculture in Europe: status, prospects, and the role of networking

Paolo Gamberoni

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Abstract

Shrimp aquaculture is a rapidly expanding sector within crustacean farming, with the Pacific white shrimp (*Litopenaeus vannamei*) accounting for the majority of global production. Most of the shrimp farming takes place in Asia, in outdoor pond systems. At European level, the interest in local, sustainable products, the development of indoor aquaculture systems and whistleblower reports concerning the ethics of low-cost imports have driven the establishment of its own shrimp farming industry. At 2022, around 30 shrimp farms are operating across Europe, with an estimated annual production of 418 tons. Shrimp are generally sold at sizes between 12 and 30 grams, with prices ranging from about €25 to €100 per kilogram. At the moment, several challenges remain, such as the limited availability of high quality of shrimp postlarvae, high operational costs, wastewater treatment constraints, difficulties in scaling up production, and coordination with the broader shrimp market. Future developments in the sector are expected to focus on enhancing seed quality, improving technological integration, through artificial intelligence, and adopting integrated multitrophic aquaculture systems to increase sustainability. Although planned scaling up production may help reduce unit costs, European shrimp products are unlikely to compete directly with low-cost imports from Asia. Instead, they are expected to occupy a premium market niche, marketed as high-quality or luxury products.

In support of this growing industry, the Alfred Wegener Institute (AWI) established a European shrimp network in 2017, Euroshrimp. This network connects farmers, researchers, consultants, and students, with the goal of fostering collaboration, sharing innovations, and addressing common challenges. The network hosts an annual event, usually at the European Aquaculture Society (EAS) conferences, and occasionally publishes a newsletter, research advances through its website. Research projects linked to AWI and Euroshrimp members' collaboration span several domains, including technological innovation, artificial intelligence, nutrition/biofloc trials, and animal welfare.

As technical innovation, the "Sorted" project, aims to develop an automated shrimp sorting device to reduce handling stress, manual labor, and size-based cannibalism. Additional projects such as "Monitor Shrimp" and "ShrimpWiz," are applying AI-based tools to count shrimp, estimate biomass, and assess stress levels through tail colour detection. Collaborative research with Brazilian universities has explored the use of biofloc systems, including trials that utilize byproducts from the brewing industry as a carbon source to initiate floc development or the effects of environmental stressors, such as oxygen depletion, temperature, stocking density, and light exposure on shrimp health and performance. In the field of nutrition, sustainable protein alternatives have been evaluated for *L. vannamei*, including feed ingredients derived from the *Crangon crangon* industry, legumes,

and insects. Regarding animal welfare, the CrustaWohl project adopts a holistic approach to identify chronic stress markers in shrimp. Its ultimate objective is to develop a practical welfare index that farmers can use routinely to monitor and optimize both shrimp health and production conditions.

Question: Why is there a delay in starting production in the EU?

Paolo: Climate, need for indoor facilities. In the south there are seasonal ponds, but the produced species could become invasive. Market needs investors but it is a high cost.

Question: Are there other ways to get certified seeds from outside of EU?

Paolo: There can be sourced from the US but the shrimp is more aggressive and grows faster.

Question: Are the veterinarians/biologists working in this industry aware of listed diseases?

Paolo: Samples have been sent out for testing and only found vibriosis. Some may be aware but some not. Not many diseases currently, mostly vibriosis.

SESSION II: Results from ongoing research on crustacean diseases

Chair: Shyam K Uthaman

AI-powered Shrimp disease detection probe for the real-time monitoring for improved welfare and farming efficiency: A Proof of Concept

Shyam Kokkattunivarthil Uthaman[1], Niccolò Vendramin[1], Casper Stæhr[2], Gustav Stæhr[2], Fridi Mellemgaard[2] and Britt Bang Jensen[1]

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Abstract

Disease outbreaks pose major challenges to the shrimp industry, both economically and operationally. Timely prediction and management are essential, as delays can lead to severe losses. Currently, farms rely on daily health monitoring through sampling and visual observation of shrimp behavior and mortality—an approach that is often slow and error-prone. To overcome these limitations, ongoing research is exploring the use of Deep Learning (DL) AI models integrated with advanced imaging and video technologies for more accurate and efficient disease detection.

In an ongoing project, we are developing AI algorithms to detect abnormal shrimp behavior and clinical signs using high-definition underwater and submerged cameras. These camera sensors enable continuous optical monitoring, generating large datasets for training. Python is used for data acquisition and integration with machine learning workflows due to its versatility and strong ecosystem. The collected data supports various AI tasks, including classification, object detection, segmentation, and key point detection. Live camera feeds are processed through a pipeline of AI models: starting with object detection for shrimp tracking, followed by analysis for stress indicators or lesions, and concluding with a decision model that triggers alerts for abnormal conditions.

This study evaluates the feasibility of an AI-based imaging system, Disease Detector, for real-time health monitoring in shrimp aquaculture. As proof of concept, the system was tested using *Litopenaeus vannamei* infected with white spot syndrome virus (WSSV). Three sequential trials were conducted to estimate the Shrimp 50% Infective Dose (SID_{50}), assess camera performance, and generate deep learning datasets capturing clinical signs of white spot disease (WSD). Preliminary results demonstrate the system's ability to detect early disease indicators, highlighting its potential for timely alerts and stakeholder notification. This continuous, online monitoring approach offers a promising step toward precision shrimp farming.

Q: Ewa Lewisch, Austria – How will experimental settings be changed to be used under pond conditions (clear water in contrast to non-clear water)?

A: Shyam – The current experiment was set to make the data set (clinical signs/abnormalities) to teach the algorithm to learn that. After the AI model has been done it needs to be checked on the farm in real-world settings.

Studies on crayfish plaque *Aphanomyces astaci* genotype D in northern noble crayfish

Tiina Korkea-aho[1], **Sirpa Heinikainen**[1], **Reetta Santaniemi**[1,2], **Satu Viljamaa-Dirks**[1]

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Abstract

Crayfish plague is a destructive disease of European endemic freshwater crayfish including noble crayfish (*Astacus astacus)*, while the original host species from North America can be carrier of the plague agent *Aphanomyces astaci*. In the last decades, the crayfish plague epizooties in Finland were caused by the genotypes A or B. Genotype A was only connected with noble crayfish. Genotype B caused acute disease episodes in noble crayfish but was also found regularly from the invasive species signal crayfish (*Pacifastacus leniusculus*). Noble crayfish populations in Kemijoki river in the Northern Finland has suffered mortality event in the productive populations of noble crayfish in the years 2010-2011 due to the crayfish plague. In Kemijoki river estuary a small population had survived until 2020, which 6 moribund individuals were studied and diagnosed for *A. astaci* genotype D. This was first isolation of *A. astaci* genotype D in noble crayfish in Finland. The isolated *A. astaci* Kemijoki strain was studied in laboratory to investigate strain's 1) adaptation in different water temperatures by growth experiment on medium and 2) pathogenicity for noble crayfish with exposure experiment.

The *A. astaci* Kemijoki strain showed high growth rate in several temperatures at agar, and *A. astaci* genotype D, including Kemijoki strain, produced widest colony diameter in 11 days, also at cold water temperature 4 °C, when compared to *A. astaci* genotype strains A, B, C and E. Noble crayfish were exposed to 1000 spore/ml of *A. astaci* genotypes A and B and D Kemijoki strain for 14 days. Mortality started in day 4 of exposure in tanks which were exposed to genotype B and genotype D Kemijoki strain. In tanks exposed to *A. astaci* genotype A, mortality started on day 6. On day 14 mortality in tanks were 100 %, 100 %, 87 % and 40 % for noble crayfish exposed to *A. astaci* genotype B, genotype D Kemijoki strain, genotype A and control (no exposure), respectively.

Genotype D is considered a warm-water- type strain as it thrives in warmer temperatures than the rest *A. astaci* genotypes. However, *A. astaci* genotype D strain isolated from Kemijoki noble crayfish population showed high growth rate also in cold temperatures and had high pathogenicity to northern noble crayfish. These investigations indicate that *A. astaci* genotype D can cause severe disease outbreaks even in colder climate and poses threat for northern noble crayfish populations. Possible infection sources of Kemijoki noble crayfish population with *A. astaci* genotype D will be discussed.

Q: Tobia Pretto, Italy – what was the water temperature in the area where the outbreak with this genotype was seen?

A: Tiina – Normally, 15 degrees in the Botnian bay as the highest temperature, but will have to go back to find the actual temperature at that specific time.

Hematodinium perezi detection in blue crab (*Callinectes sapidus*) and its seasonal prevalence in northern Adriatic lagoons

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Abstract

The blue crab (*Callinectes sapidus*) is an allochthonous and invasive species observed in the last decades in the Mediterranean Sea, which has recently spread in the Italian northern Adriatic lagoon, causing significant damage to the local shellfish farming. Evaluation of the presence of dinoflagellate parasites of the genus *Hematodinium*, which can cause mortality and influence population dynamics in the blue crab native range, has not been investigated in northern Adriatic Sea and data on its seasonal prevalence in commercial size specimens are lacking. An average of thirty blue crab specimens (>120 mm in carapace width) were collected with crab traps by professional fishermen from 7 lagoons in the north-western Adriatic Sea (Friuli, Veneto and Emilia Romagna Regions) between April and May 2024. The specimens were screened for *Hematodinium* infection using haemolymph analysis (real-time PCR, cytology) and histopathology. In each lagoon, the presence of the dinoflagellate was confirmed in specimens that tested positive by real-time PCR, using end-point PCR and Sanger sequencing of the ITS1 region. Additionally, monthly sampling (from April 2024 to May 2025) has been performed in one of these lagoons (Scardovari, Veneto) to assess the seasonal prevalence of *Hematodinium*. Circulation of *Hematodinium perezi* in *C. sapidus* has been confirmed in 4 lagoons (Venice, Scardovari, Goro and Marina di Ravenna) by real time PCR, sequencing and histology. Prevalence in spring 2024 varied between sites (20-97%). Monthly sampling in Scardovari lagoon revealed fluctuation in prevalence between late winter and early summer with *Hematodinium* not detectable between August and November. Histological evaluation showed different life stages (filamentous and ameboid trophonts, clump colonies) and variable infection intensity of *Hematodinium*. Furthermore, the sequence analysis not only confirmed the presence of *H. perezi* but also revealed specific indels in the ITS2 region that differ from those observed in other investigated areas. In conclusion, this study demonstrates that *Hematodinium perezi* is present in blue crab populations in north-western Adriatic lagoons with seasonal prevalence in adult specimens that differs from native population of the north-western Atlantic coast. These preliminary results show a genetic variability in *Hematodinium* and underscore the need to investigate its circulation also in autochthonous crab populations. Project funded by the Italian Ministry of Agriculture, Food Sovereignty and Forests – MASAF, CUP J38H23001430001.

Q: Niccolo Vendramin, Denmark – are you thinking on testing the DNA extractions of blue crab for WSSV?

A: Tobia - A mortality event summer 2024 – related to reproduction issues – only parts (something that sounded like fins?) reached the shore – tested for WSSV – were negative

Thought of testing for virus 1 – the stock of hemolymph (DNA extractions of hemolymph stored at -80) will be used for this.

Determining 35 year of *Aphanomyces astaci* genotype groups in Switzerland

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Abstract

Aphanomyces astaci, the causative agent of crayfish plague, exhibits varying levels of virulence depending on its genetic strain. Five genotype groups (A–E) have been well characterized, and — except for genotype group A — most are associated with significant mortality in European freshwater crayfish species.

In this study, we aimed to investigate the presence and diversity of *A. astaci* genotype groups in Switzerland by adapting the qPCR protocol described by Di Domenico et al. (2021) into a Pentaplex assay. We analyzed both fresh tissue samples (collected between 2020 and 2024) and archived formalin-fixed, paraffin-embedded tissue samples (collected between 1991 and 2020) that had previously tested positive for *A. astaci*.

The Pentaplex-qPCR assay reliably detected genotype groups A, B, D, and E in 28 out of 46 crayfish populations (60.8%) across Switzerland. Most positive detections were associated with crayfish plague outbreaks affecting European crayfish species, except in two populations where genotype group B was identified in North American crayfish (signal crayfish, *Pacifastacus leniusculus*). Genotype group C was not detected in any sample.

Genotypic diversity was highest in the Rhine basin, particularly between 2016 and 2020, where groups A, B, D, and E were all present. In contrast, only groups B and E were found in the Ticino basin, and only group B in the Rhone basin. Notably, genotype group D — typically associated with the Louisiana red swamp crayfish (*Procambarus clarkii*) — was first detected in the Rhine basin in 1991, four years prior to the first documented introduction of this carrier species. Genotype group A was identified once in 2017 in the Rhine basin, causing limited mortality in a European crayfish population.

The analysis of archived samples revealed a long-standing presence of *A. astaci* in Switzerland dating back to 1991, offering valuable insights into the spatiotemporal dynamics of crayfish plague. Identifying genotype groups not only helps clarify potential introduction pathways for both pathogen strains and carrier host species but also aids in tracking outbreaks and pinpointing primary sources of spread. Future research is needed to further explore the genetic variability of *A. astaci* and its relationship to differences in virulence and dissemination patterns.

Q: Tiina Korkea-Aho, Finland: Could pentaplex-PCR work with eDNA sampling?

A: Heike - eDNA samples give problems with genotyping (CT 30-35) but think it will not give more problems using pentaplex-PCR on eDNA samples than results with simplex PCR on eDNA samples.

Q: Niels Jørgen Olesen, Denmark - Still noble crayfish in Europe even though there were concerns of them dying out – why?

A: Heike - Mortalities are still high due to crayfish plaque and are depending on the genotype. Why is it still present? Maybe because of the protection steps for noble crayfish that have been taken. It is a fact that crayfish still are sensitive to the disease.

SESSION III: Update from the EURL for crustacean diseases

Chair: Shyam K Uthaman

2025 Inter-laboratory Proficiency Test for Crustacean diseases

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Abstract

In March 2025 an inter-laboratory proficiency test for White Spot Syndrome Virus (WSSV), Taura Syndrome Virus (TSV) and Yellow Head Virus genotype 1 (YHV1) was organized by the EURL for Fish and Crustacean Diseases. The test material consisted of FTA cards incubated with tissue extracts of WSSV-infected shrimp, TSV-infected shrimp, YHV-1 infected shrimp or non-infected shrimp. The participants are asked to identify the WSSV, TSV and YHV positive samples among nine test samples. 20 laboratories in 19 EU member states and 7 laboratories from non-EU countries were signed up for the test. The expected pathogen in each FTA card will be presented.

Q: No questions

EURL for Crustacean Diseases, work done in 2024

Niccolò Vendramin and the EURL team

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Abstract

The duties of the EURL are described in the REGULATION (EU) 2017/625 (OCR). The duties mainly concern the crustacean cat A and C diseases given in (EU) 2018/1882 : White Spot Disease (WSD), Taura Syndrome (TS) and Yellow Head Disease (YHD).

The facilities supporting the activities of the EURL are placed in the DTU Campus in Kgs. Lyngby, and placed in the institute DTU AQUA, National Institute of Aquatic Resources.

The 15th Annual Workshop of the National Reference Laboratories for Crustacean Diseases was held online on 30th of May 2024. There were 68 participants attending the workshop in person, representing 34 countries. There were three sessions, with 12 presentations.

The annual proficiency test for crustacean diseases (PT) included WSSV, TSV, YHV samples with 25 laboratories including 18 NRLs of EU Member States accepted the invitation to participate and send in their test results for diagnostic assays not derogated to other laboratories. The full reports with the results and the identification of NRLs will be submitted to the Commission, whereas each participant has received a coded version of the report and a certificate of participation with an indication of performance.

During 2024, resources were again used to collate data on surveillance, health categorisation and diagnostics in EU; to identify and characterise selected virus isolates; to type, store and update a library of listed virus isolates; to supply reference materials to NRLs; to provide training courses in laboratory diagnosis; to update the EURL website (www.eurl-fish.eu), to provide consultancy to NRL´s and finally to attend international meetings and conferences.

The EURL provided help in supporting NRL for diagnosing WSSV in wild Crayfish.

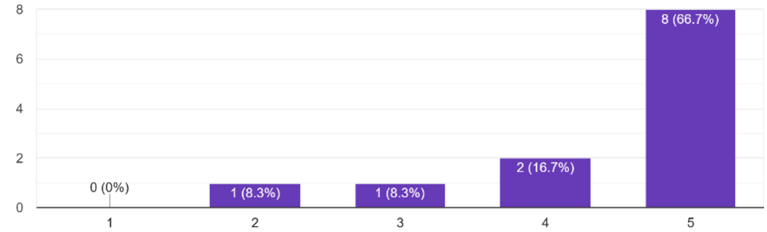
Significant efforts were put into the technical advisory to EFSA in working groups for vector species for listed crustacean diseases. From the laboratory side, the EURL further assessed the analytical characteristics (specificity and sensitivity) of the following methods by participating in Inter-Laboratory proficiency test provided by CSIRO in IMNV, AHPND, IHNNV.

Q: No questions

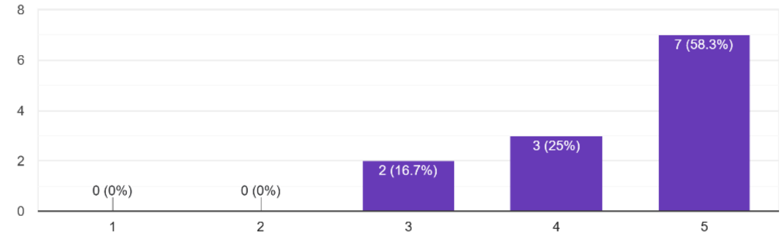
Workshop evaluation

A questionnaire was delivered to the participants asking to evaluate various aspects of the workshop. An overview of the 12 questionnaires retrieved is shown below. Specific comments are going to be considered for the next annual workshop organization.

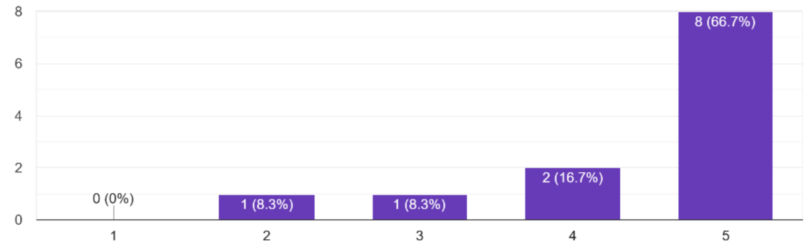
SESSION I:Update on EU listed crustacean diseases and their control- quality of the presentations
12 responses



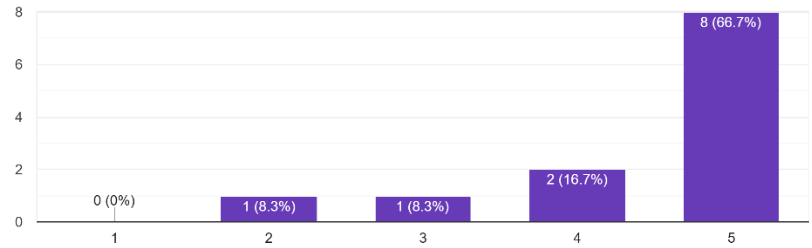
SESSION I:Update on EU listed crustacean diseases and their control- relevance for you
12 responses



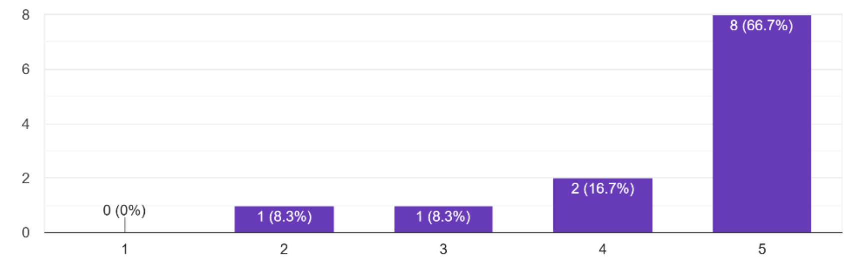
SESSION I:Update on EU listed crustacean diseases and their control- increase of your knowledge
12 responses



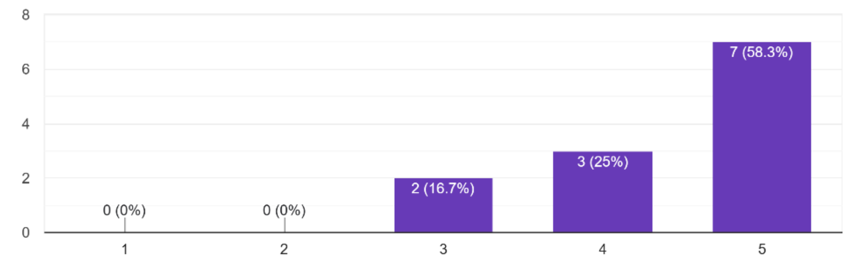
SESSION I:Update on EU listed crustacean diseases and their control- overall score
12 responses



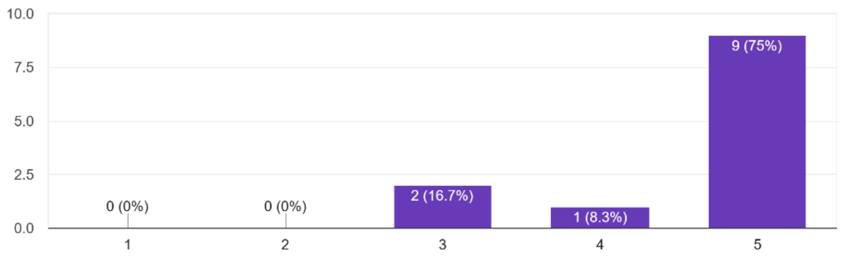
SESSION II:Results from ongoing research on crustacean diseases- quality of the presentations
12 responses



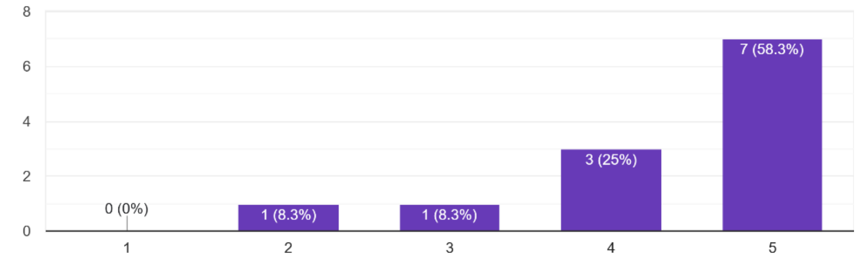
SESSION II:Results from ongoing research on crustacean diseases- relevance for you
12 responses



SESSION II:Results from ongoing research on crustacean diseases- increase of your knowledge
12 responses



SESSION II:Results from ongoing research on crustacean diseases- overall score
12 responses

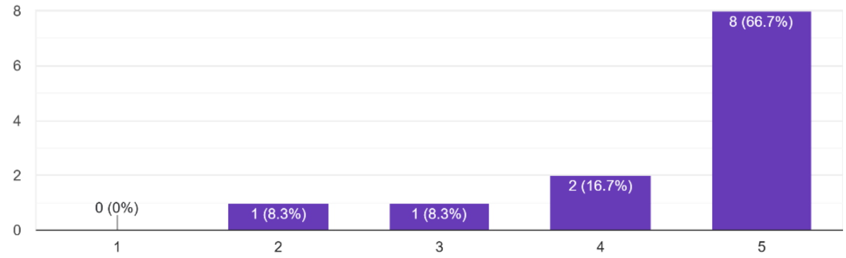


SESSION II: Results from ongoing research on crustacean diseases- comments, feedback, inputs

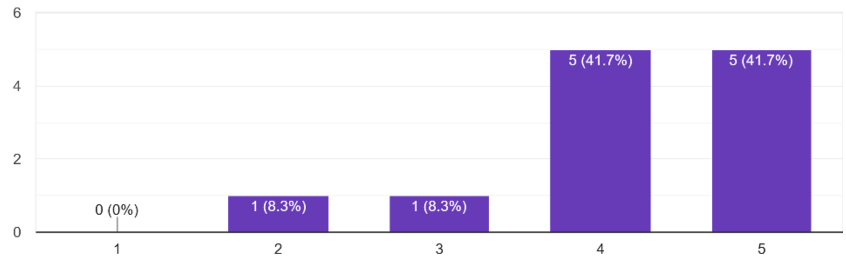
Excellent sharing of knowledge and update on the work done in EU

Under my point of view, this session could be more focused on listed diseases and pathology. I had the impression that the highlight of this session was production.

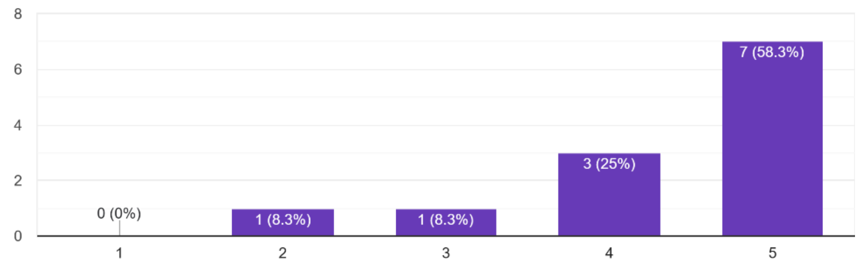
SESSION III:Update on EU listed crustacean diseases and their control- quality of the presentations
12 responses



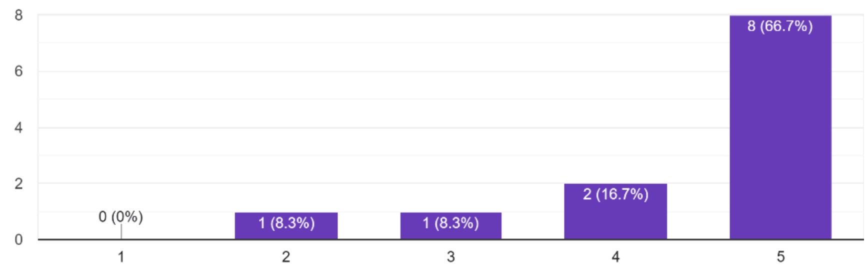
SESSION III:Update from the EURL for crustacean diseases- relevance for you
12 responses



SESSION III:Update from the EURL for crustacean diseases- increase of your knowledge
12 responses



SESSION III:Update from the EURL for crustacean diseases- overall score
12 responses



SESSION III: Update from the EURL for crustacean diseases- comments, feedback, input2 responses

Good!

I would have appreciated that lunch was included after this workshop, at least a sandwich, so people that have to stay or that have a flight can have lunch just after the workshop.

Greetings and conclusions of the meeting

The tentative dates for the next meeting will be the end of May 2026. It will be organized as a virtual meeting. Thanks a lot, to the people arranging the meeting as well as those of you who helped running the meeting by being chair, presenter and/or participant.

We are looking forward to seeing you all next year!

With kind regards,

The EURL fish and crustacean team.