

EXPERT OPINION

# Importance of advanced training programmes for veterinarians regarding the implementation of aquatic animal health controls within the frame of the EU aquatic animal health legislation

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## Abstract

In terms of an EU-wide comparison, a relatively high number of aquaculture farms exists in Germany. Therefore, and also due to the small-scale structure of the aquaculture industry in Germany, the application of legal requirements with regard to the implementation of self-monitoring aquatic animal health visits and official health controls is associated with a particular challenge. The controls mentioned before have to be carried out on a risk-based approach in accordance with the Council Directive 2006/88/EC (until 20 April 2021) resp. as from 21 April 2021 in accordance with the Regulation (EU) 2016/429 (Animal Health Law / AHL). Practicing veterinarians, as well as official veterinarians authorised by the competent authority, have to be trained for these purposes. Given the number of aquaculture facilities, the need for adequately trained professionals in Germany is relatively high. Training courses are offered in some German Federal States during which the required knowledge is imparted both theoretically and practically while the theoretical knowledge may also be passed on during digital events. These training programmes must be mutually recognised in the Federal States in Germany. Official veterinarians also require regular training regarding aspects of aquatic animal health. Due to the application of the AHL, an intensification of training and other educational activities focused on aquatic animal health surveillance is essential.

## Introduction and background

The aquatic animal health surveillance of aquaculture establishments within the European Union (EU) must be carried out on a risk-based approach. This is provided for by the Council Directive 2006/88/EC until 21 April 2021 and the Regulation (EU) 2016/429 (Animal Health Law / AHL) thereafter repealing the afore mentioned Council Directive. Operators of authorised or approved

aquaculture establishments according to the legal provisions mentioned before are obliged to initiate self-monitoring aquatic animal health visits and are subject to official health controls too. The frequency of these controls depends on the risk regarding aquatic animal disease introduction and spread posed by the aquaculture farm in question. The method of risk assessment is described later.

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With regard to the 2018 reporting year, the European Union Reference Laboratory (EURL) for Fish and Crustacean Diseases was notified of a total of 13,206 fish keeping aquaculture establishments in Germany. German fish farms accounted for 51.3% of the total number of fish farms in the EU (25,740) in 2018 (EURL, 2019). This lets Germany clearly stand out from other EU Member States. However, many of these aquaculture production establishments are small producing, low volumes and often serve as semi-professional side-line or mere “hobby” activities. The overall production volume of aquaculture farms in Germany was around 31,800 t in 2018 (EUROSTAT, 2019). In comparison, e.g. Denmark only recorded 223 fish farms in 2018 (EURL, 2019) with an annual production of approximately 32,200 t (EUROSTAT, 2019). However, the legal requirements with regard to self-monitoring aquatic animal health visits and official health controls, as mentioned before, have to be applied to all aquaculture establishments placing live aquatic animals or their products on the market, regardless of the size of the aquaculture production business. Exemptions thereof are possible for aquaculture establishments producing a small quantity of aquaculture animals destined for human consumption only, either supplied directly to the final consumer or via local retail establishments. Consequently, the animal health surveillance of aquaculture establishments in Germany and other EU Member States with a comparable structure of the aquaculture industry is particularly challenging. With regard to the implementation of the self-monitoring animal health visits, adequately qualified veterinarians and / or aquatic animal health professionals must be available in sufficient numbers. Moreover, official veterinarians authorised by the compe-

tent authority and appropriately qualified to perform official activities need to be trained for the implementation of the official controls of aquaculture establishments.

### **Legal basis**

As outbreaks of certain diseases in aquaculture animals may cause severe losses to the affected business, minimum control measures determined by the Council Directive 2006/88/EC need to be applied. Though this Directive is still in force, it will be repealed with the Regulation (EU) 2016/429 (AHL) on 21 April 2021. Both legal provisions focus on the prevention and control of listed as well as emerging aquatic animal diseases.

#### *Legal Requirements based on the Council Directive 2006/88/EC*

In contrast to an EU regulation, an EU directive is not immediately effective and binding. In order to achieve the objective set out by the directive, an EU directive needs to be implemented through a national legal act providing for a legal basis in the respective EU Member State. Regarding the Council Directive 2006/88/EC, this requirement was met in Germany through the adoption of the Fish Disease Ordinance in 2008. In accordance with the Fish Disease Ordinance (§ 7 (1) implementing Article 10 of the Council Directive 2006/88/EC), operators of authorised aquaculture production businesses have to initiate self-monitoring aquatic animal health visits to be carried out by, what is referred to as, qualified aquatic animal health services. The frequency of these inspections mainly depends on the risk (low, medium or high) posed by the eligible aquaculture establishment regarding the introduction and spread of a disease. Furthermore, the control frequency

also depends on the health status of the aquaculture establishment in question as set out in Annex III Part A of the Council Directive 2006/88/EC. Annex III Part B of the Council Directive 2006/88/EC sets out recommendations for aquatic animal health surveillance schemes for both self-monitoring aquatic animal health visits carried out by qualified aquatic animal health services and for official controls carried out by the competent authorities. The frequency of the latter depends again, on the risk posed by the aquaculture establishment. In Germany, § 9 of the Fish Disease Ordinance regulates the official controls and their frequency whereby reference is made to Annex III Part B of the Council Directive 2006/88/EC as well as to the “Official Controls Regulation” (EU) 2017/625. Article 10 of the Council Directive 2006/88/EC also refers to the Commission Implementing Decision (EU) 2015/1554 (“diagnostic manual”) which lays down the requirements for health inspections and sampling in aquaculture establishments.

As mentioned earlier, self-monitoring obligations must be performed by qualified aquatic animal health services, which have to be veterinarians or aquatic animal health specialists. Both groups of professionals must be trained in recognising clinical signs associated with an aquatic animal disease listed or not in Annex IV of the Council Directive 2006/88/EC as well as contemplating the detection and reporting of unusual disease occurrences. In Germany, the requirement profile for qualified aquatic animal health services is specified in the instructions for the implementation of the Fish Disease Ordinance of the Federal Ministry for Food and Agriculture (BMEL; 2011, 2018). These official implementation instructions also

contain requirements relating to the organisation of training programmes with regard to the qualification contents, the required theoretical knowledge and practical skills to be conveyed.

#### *Legal Requirements based on the Regulation (EU) 2016/429 (AHL)*

As from 21 April 2021 the AHL will apply and it will be immediately binding for all EU Member States. Based on the AHL, several delegated and implementing acts (tertiary legal acts) have been issued which contain further regulations based on the AHL including the implementation of risk-based aquatic animal health visits and official controls. The basic legal act AHL, lays down the rules for the prevention and control of animal diseases which are transmissible to animals and / or to humans. The regulation applies to terrestrial, aquatic and other animals. In accordance with Article 4, AHL aquatic animals include fish, aquatic molluscs and aquatic crustaceans at all life stages.

Operators shall ensure that aquaculture establishments under their responsibility receive aquatic animal health visits from a veterinarian or an aquatic animal health professional when appropriate due to the risks posed by the establishment in question, taking into account e.g. the type of establishment, species and categories of kept aquatic animals and the epidemiological situation. The main purpose of these visits consists in disease prevention, particularly through consultation of the operators regarding biosecurity as well as the detection of, and information on, signs indicative of the occurrence of listed diseases or emerging diseases (point 1 of Article 25 AHL). The competent authority’s surveillance obligations are laid down in Article 26 AHL.

Furthermore operators of aquaculture establishments are obliged to notify a veterinarian or an aquatic animal health professional of any abnormal mortality, other signs of serious disease or significant decreases in production rates with an undetermined cause. The veterinarian or the aquatic animal health professional has to undertake further investigation, including sampling for laboratory examination if necessary (point 1 (c) of Article 18 AHL). A suspicion of an outbreak of a listed disease has to be notified by the operators, veterinarians, aquatic animal health professionals or any other relevant natural or legal persons to the competent authority either immediately or as soon as practicable depending on the category of the presumed disease in accordance with the Annex of the Implementing Regulation (EU) 2018/1882.

Article 12 AHL sets out the responsibilities of not only veterinarians, but also aquatic animal health professionals. As mentioned before and in contrast to terrestrial animals, professionals other than veterinarians may also undertake activities assigned to veterinarians under the AHL in the case of aquatic animals. However these aquatic animal health professionals have to be authorised for that purpose under national law (point 2 of Article 12 AHL). Both veterinarians and aquatic animal health professionals shall maintain and develop their professional capacities related to their areas of activities which fall within the scope of the AHL (point 3 of Article 12 AHL). In the course of their activities regarding the prevention of aquatic animal diseases, veterinarians and aquatic animal health professionals (in the following called “qualified aquatic animal health services”) have to take all appropriate measures to prevent the introduction, development and spread of diseases;

ensure the early detection of aquatic animal diseases; play an active role in e.g. raising aquatic animal health awareness, disease prevention and raising awareness of resistance to treatments and its implications; cooperate with the competent authority, operators, aquatic animal professionals and pet keepers in the application of the disease prevention and control measures provided for in the AHL.

Approved aquaculture establishments and approved groups of aquaculture establishments where aquaculture animals are kept with a view to being moved from there, either alive or as products of aquaculture animal origin, shall, in accordance with Article 176 AHL, implement a risk-based surveillance as specified in the Delegated Regulation (EU) 2020/691. These aquaculture establishments also include open facilities where ornamental aquaculture animals are kept. An open facility means an aquaculture establishment from which the waste water is discharged directly into open waters without being treated to inactivate agents of listed diseases or emerging diseases. If closed aquaculture establishments keeping ornamental aquaculture animals are concerned, a risk-based surveillance only has to be implemented if they entail a significant disease risk because of their movement patterns (Article 17 and 18 DR (EU) 2020/691). Approved aquaculture establishments keeping listed species (susceptible and vector species) of aquaculture animals shall implement risk-based surveillance according to their ranking as ‘high’, ‘medium’ or ‘low’ risk as a result of a risk assessment carried out in accordance with Part I of Annex VI to Delegated Regulation (EU) 2020/689. However if vector species are kept without contact to susceptible species

or if non-listed species are kept, a risk-based surveillance shall be implemented only if the establishments have been ranked as 'high' as a result of the risk assessment mentioned before (Part 1 of Annex II DR (EU) 2020/691). Part 2 of Annex II DR (EU) 2020/691 covers the content of the risk-based health surveillance at aquaculture establishments or groups of aquaculture establishments conducted in accordance with Article 26 of Regulation (EU) 2016/429 with regard to the record-keeping requirements, clinical and, if applicable, laboratory examinations within the frame of official controls.

Annex VI of DR (EU) 2020/689 includes requirements not only with regard to the assessment of the risk level, but also relating to the frequency of aquatic animal health visits that are to be performed by qualified aquatic animal health services and official controls as mentioned earlier. A risk-based aquatic animal health surveillance includes health visits and possible sampling. It must be applied in approved aquaculture establishments and in approved groups of aquaculture establishments mentioned above in a manner that is appropriate to the nature of the production and which has the objective of detecting an increased mortality, listed diseases and / or emerging diseases (point 1.1 of part I Annex VI DR (EU) 2020/689). Certain aquaculture establishments don't need to undergo a risk-based surveillance e.g. confined or quarantine establishments. The risk-based animal health surveillance in aquaculture establishments and groups of those may be combined with health visits and sampling which are carried out as part of compulsory or optional eradication programmes, or to demonstrate and maintain the disease-free status or as part of a (volun-

tary) surveillance programme for category C diseases (e.g. VHS, IHN).

With the AHL being a regulation all provisions laid down are immediately binding for all EU Member States without further adaptation of the national legislation. However, national regulations are still required, e.g. regarding the approval of the qualified aquatic animal health services, the implementation of voluntary surveillance programmes for category C diseases or concerning administrative offenses. In Germany as of 29 January 2021 it is still unclear when and in what form these national regulations will be issued.

### **Advanced training programmes**

The necessity for the conduction of advanced training programmes results from the legal requirements according to the Council Directive 2006/88/EC and the AHL. Adequate training courses are also indispensable for technical reasons since topics related to fish and other aquatic animal diseases only form a minor part in the academic education of veterinarians, which is at least the case in Germany.

The number of veterinarians specialised in fish and other aquatic animal health in Germany is insufficient to fully meet the legal requirements imposed by the AHL. Therefore it is indispensable to offer training courses not only to practicing veterinarians, but also to aquatic animal health professionals qualifying them to perform activities within the legal frame of the AHL typically exerted by veterinarians only. Such training courses are offered in some Federal States of Germany either virtually or as an event with physical presence. The latter generally enables the conduction of a site inspection

of an aquaculture establishment as part of the training. On this occasion the freshly acquired knowledge concerning clinical examination, sampling or biosafety measures can be implemented directly on-site in a practical manner. Since the introduction of the Fish Disease Ordinance in 2008 as the national implementation of the Council Directive 2006/88/EC, the Veterinary Task-Force of the Lower Saxony State Office for Consumer Protection and Food Safety (LAVES) organised and held training courses (LAVES, 2019) on several occasions in Lower Saxony in close collaboration with competent local veterinary authorities and the Fish Disease Unit of the University of Veterinary Medicine Hannover, Foundation (TiHo).

Generally the target group consists of resident veterinarians willing to be trained in the identification and notification of listed and emerging aquatic animal diseases and those wishing to refresh their knowledge concerning this topic. Especially the courses offered in collaboration with the TiHo are supplemented by lectures focused on more or less common aquatic animal diseases that are neither listed nor notifiable by any means and on basics regarding aquatic animal biology and anatomy as well as curative therapy.

Official veterinarians may take part in these courses as well, although they already benefit from theoretical training during yearly official meetings organised by the Lower Saxony Ministry of Food, Agriculture and Consumer Protection and LAVES. In addition to this, advanced training courses are occasionally offered to official veterinarians who deal with the authorisation / approval or registration of aquaculture establishments and / or

play an active role regarding official health controls and / or disease control in case of outbreaks of listed aquatic animal diseases within their competence. These courses, organised by LAVES in collaboration with the TiHo, include advanced knowledge not only about aquatic animal health topics, but also concerning aquatic animal welfare and fish kills in open waters.

Due to mutual recognition between the Federal States of Germany, participants from all over Germany are quite common at the training courses in Lower Saxony. The theoretical part follows the official implementation instructions for the Fish Disease Ordinance of the BMEL (2011, 2018) and focusses on conveying the legal fundamentals of the European Union and the national legislation. In addition to this, imperative knowledge concerning aquatic animal diseases and epidemics as well as animal welfare aspects regarding sampling and biosafety measures form the essential part of these training courses.

Apart from digitally offered courses, the training courses most often extend over two days. On the first day, theoretical insight is given to the attendees followed by more practical information and a site inspection on the second day. The site inspection (Figure 1) enables the participants to apply the previously acquired skills during clinical examination of the fish population and to receive a demonstration of sampling for laboratory diagnostics.

Furthermore, other Federal States of Germany offer equivalent training programmes. The Fish Health Service Unit of the Bavarian Animal Health Service (FHS BY, 2019) and the Bavarian



**Figure 1.** Aquatic animal health training courses. On site inspection enables the training participants to apply previously acquired skills during clinical examination of the fish population and receive a demonstration of sampling for laboratory diagnostics.

Veterinary Chamber (BTLK, 2020) offer similar training courses (basic and refreshing) officially recognised by the Bavarian Ministry for Environment and Consumer Protection (StMUV). The BTLK for instance, recently offered and will offer in the near future four digital seminars relating to gill health, the practical implementation of self-monitoring animal health visits, risk-based surveillance of animal health in aquaculture establishments according to the AHL and the implementation of the AHL regarding aquatic animals in Germany.

Apart from the training opportunities mentioned above, there are other platforms offered too, for example by the German speaking branches of the European Association of Fish Pathologist (EAFP, 2020). Biennially, the Austrian, Swiss and German Branches alternately organise a joint meeting to exchange scientific

interests regarding aquatic animal health and welfare, therapeutic strategies and environmental changes affecting fishes. The EAFP International Conferences on Fish and Shellfish Diseases held every two years (EAFP, 2020) are worth mentioning as well.

### Conclusions

According to both the Council Directive 2006/88/EC, which is valid until 20 April 2021, and the AHL, which will apply from 21 April 2021, veterinarians who carry out activities under these legal provisions must be trained for those purposes. This applies not only to official veterinarians, but to practicing veterinarians or aquatic animal health professionals who perform self-monitoring aquatic animal health visits on behalf of the operators of the aquaculture establishments equally.

In Germany, the number of aquaculture farms in which aquatic animals are largely produced on an extensive small-scale basis is very high. Due to that fact there is a great need for adequately trained veterinarians and aquatic animal health professionals regarding risk-based aquatic animal health surveillance. However, in Germany, only few practicing veterinarians are specialised in aquatic animal diseases. Furthermore, topics related to fish and other aquatic animal diseases only form a minor part in the academic education of veterinarians in Germany. Consequently, practicing veterinarians who are otherwise active in the field of terrestrial animal care must be motivated to take on activities in relation to aquatic animal health, even if aquatic animals didn't form part of their veterinary education. This further underlines the need of adequate training courses.

As there will be an amended legal basis from 21 April 2021 (AHL) laying down higher demands on the risk-based aquatic animal health surveillance as well as regards to biosecurity, it will also be necessary to refresh the skills of veterinarians and aquatic animal health professionals acquired in earlier advanced training programmes. The application of the AHL requires an intensification of training and other educational activities focused on aquatic animal health from 21 April 2021.

Since in Germany the Federal States are responsible for executing the legal provisions related to (aquatic) animal health, training programmes are generally organised on federal state level. In Lower Saxony, LAVES has organised advanced training programmes regarding risk-based aquatic animal health surveillance for practicing veterinarians,

aquatic animal health professionals and for official veterinarians on a regular basis for more than 15 years. In some other Federal States similar advanced training programmes exist. Due to the application of the AHL from 21 April 2021 the contents of these training programmes must be adapted. Moreover, it must be ensured that these training courses will further on be recognised mutually in the Federal States of Germany. This is one of the reasons why national regulations are required in addition to the EU regulations relating to the AHL. As far as the contents of the training programmes are concerned, the actual instructions for the implementation of the Fish Disease Ordinance of the BMEL (2011, 2018) have to be amended.

It can be concluded that in relation to the overall aquaculture production volume, the economic costs for the implementation of risk-based aquatic animal health surveillance in Germany and other EU Member States with a comparable aquaculture structure, will inevitably be higher compared to EU Member States with a more intensive aquaculture production. In Denmark, for example, the overall production volume of aquaculture animals is equivalent to Germany's, however it is yielded by a relatively small number of farms. In addition to this there is no state support for aquatic animal health care in Germany.

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