

## Some Questions & Answers for the BHP

Questions have been raised in various venues about the propriety of the Koi Dealer Best Health Practices Certification Program (the “BHP”) project. We hope that the following will answer many, if not all of those questions.

### Summary statement

The BHP can help stop KHV from being passed on to hobbyists from participating dealers and it is believed that this is currently the most practical and effective way to control the disease within the limits of Project KHV’s finances.

### Question and answers

Q. What is the BHP?

A. Short answer: The BHP is a voluntary program designed to help Koi dealers keep Koi herpesvirus disease from entering their Koi for sale. Compliance with the program requirements is verified by licensed veterinarians.

#### Longer, more detailed answer:

Independent, licensed veterinarians help interested dealerships prepare and implement the Essential Requirements of the BHP. When ready, the veterinarian inspects the facility. If the dealership is compliant, a Certificate is issued. The veterinarian continues to monitor and verify the Dealership’s ongoing adherence to the Essential Requirements by requiring:

- Proper facility configuration and maintenance,
- Proper quarantine of all incoming Koi,
- Ongoing and appropriate bio-security procedures,
- Appropriate record keeping and
- Personnel training,
- Regularly scheduled dealer reports,
- Immediate reporting of suspected KHVD, and by
- Periodic veterinary on-site inspections.

Certified dealers will have agreed to quarantine all incoming Koi at the permissive temperature for a time adequate for KHVD to show itself. If no symptoms are observed, the fish are released for sale. If KHVD is suspected, the veterinarian directs and monitors the dealer’s investigation and any required corrective action. If KHVD infected or exposed Koi are identified, they are destroyed and associated tanks and equipment are sanitized.

Q. How is the BHP project consistent with the goals of Project KHV? Or, why is Project KHV spending the donations money on this project?

A. Short answer: A major goal of Project KHV is to promote the control of KHV. The BHP does that.

Longer, more detailed answer: The goals of the BHP project have not changed since virtually the inception of the project. Those goals are given in more detail here <http://www.akcaprojectkhv.org/> but the essence of the goals is in the first sentence quoted below:

The Project seeks donations to support KHV research and education projects to develop new technologies and education projects directly related to short-term control and prevention and longer-term eradication of KHV.

The BHP program was pursued because it is believed that it is the best way to protect hobbyists from KHV short of an effective vaccine project for which Project KHV does not have the resources. Stated another way, since the BHP can help stop KHV from being passed on to hobbyists from participating dealers, it is believed that this is the most practical and effective way to control the disease within the limits of the Project's finances.

- Q. What is a hobby-group like the AKCA doing sticking their noses into the Koi dealers' business, i.e., specifically with this BHP project?
- A. Short answer: Hobbyists hoped for, and encouraged others to step up and develop, an effective program for KHV control. After waiting for literally years after the discovery of the disease with no signs of progress, Project KHV decided to act.

Longer, more detailed answer: The AKCA and Project KHV are advocates for Koi hobbyists. We believe that, since: The dealers are generally the last ones to have Koi before the hobbyists receive them, if we can help stop KHV at the dealers, we can help protect the hobbyists.

We had hoped that the Koi dealers would take on this project and some associated with the ACKA and Project KHV tried to encourage such an effort literally years ago but it gained no traction and to this day, we are unaware of any program by the dealers (other than separate individual efforts) resembling a uniform and/or professionally vetted program to stop KHV at the dealer level.

Additionally, we had hoped that the veterinary community, being aware of this need for years, would develop such a program. We are aware of two such attempts, one lost momentum as it was just getting started. The other sought Project KHV sponsorship but was inflexible in their view of what was needed even after Project conducted extensive market research that unequivocally revealed that the proposed program was not acceptable to the Koi dealers. Hence, sponsorship for that proposal was rejected.

It was at this juncture that Project KHV decided to take the lead by sponsoring and developing a program, getting it successfully up and running and to then stepping back and allow another group to manage it. We are about mid-course in that effort.

To date we remain unaware of any similar program underway or even being considered in the U.S. by anyone or any group to address this problem or fill this gap.

Q. Why is the AKCA trying to tell the dealers what to do?

A. The AKCA is not telling the dealers to do anything. All involvement in the BHP is completely voluntary. The program requirements were prepared by animal health professionals, not the AKCA. Only licensed, independent veterinarians will certify the dealers. The only involvement of hobbyists in the program is to manage and sponsor the Program's start-up and development, i.e., they are not involved in the certification of dealerships. Once the program is up and running, Project KHV will withdraw leaving the management and maintenance of the program to professionals.

Q. Why can't the BHP guarantee a KHV-free fish?

A. Short answer: Science is not ready to guarantee KHV free fish yet from testing alone and some of the science that does exist that can be helpful is too expensive and/or too lethal to be applied to all Koi.

Longer, more detailed answer: PCR testing is effective if lots of KHV DNA is present in the suspect fish, usually during or shortly after an acute outbreak of the disease. Also, some PCR tests can determine if a very small amount of the viral DNA is present in a sample. However, there is scant evidence indicating exactly which tissue to sample if and when very small amounts of the viral DNA are suspected. And in most cases, sampling the tentatively-identified tissues likely requires killing the fish (for liver, kidney, brain and base-of-the-gills samples). Only one sample is able to be taken for low-level viral DNA w/o killing the fish, the white cells (from a blood sample). Additionally, there is only one group of scientists that seems to consistently find the viral DNA in white cells and their work has not been widely confirmed to date. All this may, of course, change over time.

A prior KHV infection may be inferred if a Koi has antibodies to KHV and has not been vaccinated. To determine this, two things are required: 1) the history of the fish needs to be known (vaccinated or not) and 2) an accurate test for the presence of antibodies needs to be done. If the test is positive and the fish has not been vaccinated, the fish may be deemed a likely carrier. If the test is negative, the fish is likely not a carrier but this cannot be determined for sure as insufficient data exist to show that a) all survivors of a KHV infection develop antibodies to the disease and b) if antibodies do develop, how long they are able to be detected in blood samples with the current technology.

Bottom line: testing can increase the confidence that a koi is neither sick with KHV disease nor is it a carrier of the viral DNA but the current state of the science does not allow a post-testing living fish to be declared "KHV free" based on testing alone.

Q. If a KHV free fish can't be guaranteed, what good is the BHP program?

A. Short answer: Finding and stopping some KHV, which the BHP is designed to do, is better than finding and stopping none of it.

Longer, more detailed answer: Quarantine at the temperatures and for the time specified in the BHP will reveal active KHV disease (KHVD). This is the most virulent phase of

Q. What do a bunch of dog and cat vets know about fish?

A. The BHP program was written by animal health professionals most of whom have extensive experience with fish in general and with koi specifically. The program has also prepared and will offer an online course to help educate interested veterinarians to better deal with Koi and Koi dealerships. Market research indicated a strong desire on the part of interested veterinarians to bring “value added” to the BHP program; they said they wanted to be more than just the “BHP police.” Additionally, all veterinarians are trained in herd or animal-group disease control.

Q. A piece of paper doesn't make dealer knowledgeable and, even if they know what to do, it won't make them act responsibly. So what good is a BHP certificate?

A. These requirements were developed by competent animal health professionals most of whom specialize in fish. Certification is issued only after a licensed veterinarian verifies that the dealership is in compliance with the minimum Essential Requirements of the BHP. The dealer agrees to continually employ and maintain these requirements and the veterinarian will verify this with regularly-required dealer reports and on-site visits. The certifying veterinarian has the right, the ability and the obligation to revoke a dealer's Certification any time they believe the dealer is significantly non-compliant with the BHP requirements.

Q. Why would the BHP issue a 10 year certificate?

A. There was a (singular) mistake during the Beta testing phase of the program and that has been rectified. All BHP certifications are now, and are expected to be so in the future, issued for a one year period. The maintenance of the certification will be contingent on satisfactory reporting and continued compliance of the dealership with the minimum Essential Requirements of the program. Recertification will be contingent on the foregoing and on-site inspections.

Q. Why did Project KHV pay for dealers and vets to participate in their Beta testing?

A. Short answer: It was believed appropriate to compensate the “guinea pigs” in order to obtain the feedback necessary to improve the Program.

Longer, more detailed answer: We believed it was necessary to subject the BHP requirements and the proposed online veterinary course to a reality challenge. The intention was to uncover any significant difficulties experienced by dealers and veterinarians in their attempts to implement the as-written document requirements and to evaluate the adequacy of the online course for its intended purpose of training and assisting veterinarians to certify dealerships. This reality challenge was dubbed the “Beta testing” phase. Subsequently and to the extent possible, modifying the BHP requirements is planned to make the document more user friendly without giving up the principles and conditions necessary to meet the goals of the Program. Modifying and improving the online course is also planned. It was viewed as appropriate to compensate those who

Note: Project KHV encourages and solicits other opinions presuming coherent rationales for those other opinions are included.