

EAFP conference Heriot-Watt University , Scotland.

By John Shawn Prescott

I have just returned from Edinburgh Scotland, where the EAFP (European Association of Fish Pathologists, had their conference, this time in the grounds of Heriot-Watt University. This event held every second year, brings together many hundreds of Fish Pathologists, who all have more or less the same interest. That is to say, they all work in some way or another, on fish disease.



Trout farm we visited picture of some raceways.

Many of them, though not all, work in the area, of fundamental or applied research, but also many Veterinarians as well as others, who farm fish for a living attend the myriad of lectures on every conceivable topic, connected with the health of fish. As well as 3 parallel sets of lectures which run for 4 days, there are a few hundred excellent poster displays, often produced by students who are studying for their Ph.D. and use the occasion to demonstrate to a wider audience their particular area of research.

Several lectures raised matters, which I thought would be of general interest to our readers, and in addition there was a session devoted to ornamental fish, their diseases and problems. I believe this is the first scientific conference of this nature, that ornamentals were given such a thorough airing, and it a tribute to the growing importance of the aquarium industry, throughout the world, as well as perhaps to the many common problems with aquaculture that such time and effort were devoted to it.

Among the speakers, was a Dr. Markus Biffar, a veterinarian who works for the very famous company of Aquarium Glaser, in Germany, one of the largest and best run companies in Europe, that exclusively import exotic fish. Dr. Biffar's job is totally related to keeping the fish in the best possible health, and it is indication of how far our industry has progressed that today leading wholesalers, as well as retail shops who are serious about their business, find it worthwhile to employ such well trained specialists to ensure they keep one step ahead of the competition, as well as minimize the losses which are unfortunately an ongoing overhead in this business.

Dr. Biffar told the well attended lecture that although the aquarium trade is growing every year, that due to the many problems of disease, the industry needs more and more help, from qualified people, if the numerous problems are to be overcome. He also made a plea, that those companies that produce the countless filters, and

other hardware devices should begin to produce proper scientific studies to back up their innumerable claims. This would also apply to the many treatments advocated by some 30 or more producers of medications for the Hobby worldwide.

As this writer has often commented upon, he emphasized that lack of optimum water quality which brought about STRESS, assisted infectious organisms to get a hold and run amok, when the resistance of the fish is lowered. He pointed out, that for many of the rarer species, even today we do not exactly know their specific requirements in nature, making it even harder to replicate ideal conditions. Thus companies like the one he currently works for are making intense efforts to develop state of the art diagnostic technology, for the enormous numbers of problems which are often different from fish to fish, and in fresh water alone amount to some 2000 species.

Another interesting lecture was given by Dr. A. Adams of Stirling University, which was produced by himself along with others, including workers from Kasetsart University in Thailand. (This latter University is one which the writer visited in May, as part of a major consultancy trip he was doing for a large American client, and the University is responsible for almost all the work on fish disease in Thailand, including most of the work, relating to the shrimp industry, in which Thailand is by far the world's largest producer).

In this lecture Dr. Adams, related their findings in work done on Siamese fighting fish, *Betta splendens*. They found that Tuberculosis which is found in some 150 + varieties of fish, is often encountered in the Bettas, and although there are several forms of this bacterium, the one they encountered closely resembled *Mycobacterium marinum*.

They especially were concerned that this bacteria can be transferred to man, and they reported that skin lesions caused by this infection had frequently been found in workers who came in contact with these fish that were infected. For those of you, who are not aware, a number of cases have also occurred in the western world, and it behoves anyone who handles these or other fish, to be most careful if there is any suspicion that this infection may be prevalent. The bacteria will thrive at temperatures of 37° C, and this means in states such as Florida and other hot areas, extra precautions should be taken.

To date there is no way known to rid a person of the very ugly discolourations that such infection can bring about on the skin, even though the disease itself it can be arrested by modern treatment. The people in Thailand are now working with the latest in PCR technology, as well as other screening techniques to try and ensure that infected fish are detected before they are exported. However be aware that at the present time, there is no legal or other requirement that such fish be prevented from being sent abroad, and even if such were implemented, the cost of policing such a law having regard to the hundreds of producers, would be almost impossible to control.

Those of you that may have read my September article will recall that I wrote on this precise topic, and I did not at that time know that such a specific lecture would be given in Scotland.

There were many interesting lectures, but one point that came out in several of them, which were dealing with detection of pathogens, was that the detection of a known pathogen was not necessarily an indication that the disease it caused would break out. Many forms of screening and detection using very advanced technology, such as PCR, DNA probes, ELISA and more, is the holy grail of people working with very large numbers of fish, such as are typically found on today's modern fish farms. It is the business of the professional to try and find out at the earliest possible moment if a disease is present and likely to break out. This way so the theory goes, one can take suitable prophylactic action.



Dr. T.A. Mo. (Norway) Gave an interesting lecture on Gyrodactylus problems with farmed salmon. A parasite from the same family, causes many problems in Tropical fish.

However perhaps to the chagrin, of the investigators, despite excellent advances in detection methods, they found often, and especially in wild fish as well, that pathogens that are known to cause specific diseases, were detected beyond any question of doubt, yet no disease developed. There is little question in my mind, that in many cases this is due to the fact that STRESS was not a factor, and that the pathogen, is just one part of the background normal flora, that is present very often in nature, and causes problems only when conditions become abnormal.

Again at the risk of being repetitious I would bring this all important point to the attention of all of you who keep aquaria. If you can maintain the water conditions, as well as the environmental parameters in accordance with good management practice, then even though the odd bacteria or perhaps a parasite may be present, the natural immune responses of the fish, will fight it off, much as we do when exposed to a cold etc. The addition of medication is too often used as a cure-all when more attention to water changes, good filtration etc, could have helped much more.

At the conference there were many lectures on vaccination technology and developments, and it does seem possible that in another few years, that some of the oral techniques now being pioneered by companies such as Aquaculture Vaccines Ltd, and others, will be able to be applied to our aquarium species, easily by the many producing farms, and at an acceptable cost. This is very important as perhaps you are not aware, that the DOA's (fish dead on arrival) after importing or a few days after same, are averaging industry wide, some 20-25% of the fish. When one multiplies this figure over the industry, the figures of losses are staggering, and you dear Hobbyist, pay for all of this. The only people who gain are the airlines, who ship dead or dying fish at the same price.

Although enormous progress has been made in detection methodology, and some progress has been made in vaccines, it was disappointing that little progress has been made in really effective new drugs. This is partly at least because any new drug, must pass an enormous amount of bureaucratic scrutiny, in both North America and the European community. Although one is sympathetic to the need to ensure that we do not end up eating fish that could harm humans, due to their treatment, it sometimes seems to be carried to extremes. Malachite Green, which is a known carcinogen, but a very effective anti-parasitic agent, is totally prohibited. Yet in young fish, most prone to such diseases as "white spot", it can cure them in a couple of days, and there is no residual

carried forward when they are ready for the table. Yet it is prohibited totally as I said. In fact in North America for the fish farmer, there are currently only about 10 “approved” products that may be used on fish without restriction, and these include things like Garlic, and Hydrogen Peroxide .

Whilst in the Hobby at this time, we enjoy a wide selection of drugs which are freely available, I am informed on good authority that these days are drawing to a close, and that within a year or two more, we will find ourselves subjected to the same kinds of regulations that currently prevail all over Europe, where no non approved drug, may be sold except with a Veterinarian’s prescription.

Whilst I feel we have gone too far, in allowing all and everything to be sold freely over the counter, which in the case of antibiotics, is certainly causing resistant strains of bugs to evolve, it does appear to me at least, that with good will, intelligence, and some oversight, we should be able to improve things, without making life impossible, for those of us, that have dearly prized sick fish, and yet accept that some regulation is in everyone’s interest. What I would not like to see is another small army of Federal regulators, making everyone’s life a misery.

The delegates who numbered over 500 from some 40 odd countries, including many representatives from Japan, the USA, Korea, Thailand, and much more, had a most fruitful week. The writer and his partner finished up the week on the Friday, with a tour (there was a choice of four), which was a visit to the oldest whiskey distillery in Scotland. This distillery appeared to be making much more money from its tourists conducted tours and sale of countless forms of souvenirs , than it could possible make from the sale of its malt whiskey, which they produced as they informed us some 400,000 litres annually. After an excellent lunch of Scottish specialties which included smoked salmon, for which Scotland is famous, venison which is now farmed extensively, and a dessert of raspberries, which that region produces copiously, we left to visit a trout farm in the nearby area.

The trout farm produces some 300 tons annually and sells some of the produce as finished table ready fish, others are grown on to a stage and sold to farms in the south of England, where the growing season is much longer. In that part of the world (Scotland), they only really get some 5-6 months actual growth. The farm is fed by a natural strong stream, and they informed the very interested party (all fish pathologists), that they vaccinated against Red mouth disease of trout, but for the most part hardly ever saw any other form of disease.

All in all a very interesting week, with a great deal of information to be digested. I do hope that some of you, will find my discourse on what we heard and saw, in some way relevant to your fish keeping, as in fact all fish share many common factors, and disease, its prevention and cure, is certainly one of them.