

Bright May sunshine greeted the 55 delegates who descended upon the palatial facilities of Ireland's Marine Institute in Oranmore Co. Galway for the 8th meeting of the Pancreas Disease Tri-nation working group. Scientists and Industry representatives had gathered to be updated on the wide range of research projects as well as Industry news on the status of salmonid alphavirus diseases in Northern Europe.

The seminar was opened by Gordon Ritchie, the tireless chairman and convener of the Tri-nation group who reported that since the 7th meeting in Bergen the steering committee have submitted a proposal to the European Aquaculture Technology Platform (EATP) Secretary General requesting that research into PD be included under the health & welfare thematic area of the platform. Indications of acceptance so far appear encouraging, and a positive outcome will introduce another formal funding stream into the Tri-nation structure.

There followed a series of technical presentations beginning with situation reports on the status of PD in the Scottish, Irish and Norwegian Industries over the past year. For 2007, losses in all three countries had been the worst on record with no obvious sign so far, that 2008 would be any better. However, a number of risk factors, common to other diseases, were reported by Sandy Murray of FRS in Aberdeen and include movements of marine stock, more than one input to a site, over-feeding as well as sites holding more than 250,000 fish. Whilst not necessarily individually critical, when brought together these factors can significantly influence both the risk as well as the outcome of challenge by PD virus which in Scotland tends to manifest itself most commonly in the months of August and September.

Hamish Rodger of Vet-Aqua International, informed the meeting that PD was now endemic in the three principal salmon farming areas of Ireland. Hamish has also observed a new trend whereby mortality amongst apparently healthy fish can occur at about 8 weeks following a stock move or handling event and that mortality from PD primarily occurs within a temperature window of risk at between 10°C and 15°C. This window has been extended significantly over the past 20 years according to Tom Doyle of the Marine Institute. In 1985 the North Atlantic 15°C isotherm was located at 47.5° latitude and by 2000 this had moved north to 52° latitude (that's from Brest to Pembroke for non-mariners!)

According to Anne Beret Olsen of the Norwegian National Veterinary Institute, recent and radical action has been necessary in Norway in response to the devastation resulting from the 99 recorded cases of PD identified in this country last year. This has included classification of the disease as a 'group B notifiable disease', as well as a policy of zoning infected areas allied to stock testing and movement controls in an attempt to inhibit transmission.

On this subject David Graham of the Agri-Food and Biosciences Institute at Queens University in Belfast advised that his longitudinal studies have indicated that stocks which have recovered from PD can still pose a significant threat to naïve fish in the same proximity making the separation of populations a crucial consideration for strategic mitigation.

Strategic considerations of this type were the central theme of Cato Lyngoy from Marine Harvest (Norway) who suggested that radical change on the part of operators in PD zones is “inevitable” in successfully combating PD. Such measures could include a reduction in number, but elevation in size, of sites in these areas, thereby harmonising production methodologies as well as increasing the distance between operations. Radical stuff indeed if perhaps 12 companies operating 30 concessions in an area need to shrink to 8 sites without loss of tonnage! But actually this is exactly the kind of outcome which should spawn from the information and advice coming from the activities of the research constituents of the Tri-nation group. To this end Cato informed the group of a new Industry funded forum in Norway which has been established amongst operators affected by PD in order to form a united strategy. Information regarding the activities of this group will soon be available at www.pdfri.no

Cato emphasised that a strategic approach with a long-term view using a variety of disciplines will be necessary in combating the impact of alpha viruses in the salmon Industry. These include vaccine development, stock management strategies, site planning, and the development of stocks which are bred for resistance.

Mechanisms for resistance underlined the cutting-edge presentation delivered by Kim Thompson of The Institute of Aquaculture at Stirling. Kim and colleagues are using gene micro-array nanotechnology to examine the genetic regulation which underpins the immune mechanisms which salmon deploy when under attack from pancreas disease. So far it would appear that many of these mechanisms are associated with so-called non-specific immunity similar to that which has been found to be important in combating IPN.

Nomenclature apart, something which the PD Tri-nation working group has always been acutely conscious of is the fact that there are other related pathologies which have significant impacts on farmed salmon. Hildegunn Viljugrein and Ruth Torill Kongtorp both from the National Veterinary Institute reported on Heart and Skeletal Muscle Inflammation (HSMI) in terms of risk factors and experimental transmission. Whilst not as commercially significant as PD in Norway, the number of outbreaks of HSMI vastly exceeds those of PD and does appear to be more geographically widespread than PD and thus less sensitive to proximity as a constraint on transmission.

Cardiomyopathy Syndrome (CMS) is also a common condition but about 50% less common than HSMI in terms of number of sites affected. Recent studies have provided strong support for the current view that these conditions are possibly caused by infective agents. Studies have shown that fish which receive homogenated material derived from fish presenting with each condition, will develop signature lesions, diagnostic for each condition. Work continues in Norway and Scotland to improve our understanding of these two conditions.

The second day of the seminar was primarily an Industry Day and presentations were made by Charles McGurk from Skretting, Adel El-Mowafi from EWOS and Petter Frost from Intervet. Skretting presented their preliminary results and EWOS presented data from trials which had been conducted both in the laboratory as well in the field on the impact of specific dietary formulations on the outcome of challenge by PD.

Petter Frost presented data from laboratory tests using the new PD vaccine. In all cases outcomes which were by and large encouraging, were measured by assessing the pathological and serological changes in experimental groups of fish. This is because there is currently no reliable mortality-based challenge model which can be used as a research tool for measuring the efficacy of tools such as vaccines or treatments for alpha virus conditions.

Partly because of this there is a pressing need for standardisation in the diagnosis and categorisation of salmon alpha virus diseases. In June of this year Neil Ruane of the Marine Institute will attend a meeting of the Northern Periphery Programme at Voss in Norway and will present a case for funding work in this area.

As the 8th meeting of the Tri-nation group closed there was a general consensus that the structure of this forum has proved extremely effective in fast-tracking the movement of information particularly around the research community in the specific field of pancreas disease. It was generally felt that it would be a missed opportunity not to explore the possibility of adopting the Tri-nation structure in a wider context that could be flexible enough to take on other emerging biological issues facing salmonid culture in Northern Europe. By way of an example, salmonid gill pathologies or respiratory disorders were canvassed as a prime candidate for the Tri-nation treatment! It is intended that this idea will be explored in more detail between now and the next meeting.