

Everyone agrees that life is more complicated nowadays. In the past, universities had Departments of Zoology. Now there are Departments of Animal... Husbandry, Services, Care and Control, Health, Veterinary Services, Welfare and Behaviour. The welfare of farmed animals throughout their lives and, particularly, at the time of slaughter is now very high on the agendas of producers and consumers. The welfare of farmed fish, throughout their lives and at the time of slaughter is a relatively new consideration.

We have been involved in aquaculture, one way or another, for about four decades. Our collective experience relates to rainbow trout, Arctic char and Atlantic salmon culture, humane slaughter and environmental impact.

We have seen significant technological change and we have seen no change! At the end of the second decade of the twenty-first century, modern seawater RAS systems are producing high value kingfish while freshwater flow through earthen ponds are still in use in rainbow trout production!

Our focus now is on the humane slaughter of finfish produced in freshwater or seawater. 'Humane' is a word that requires definition. According to the Oxford Dictionary, the definition of 'humane' is 'showing compassion or benevolence'.

In the context of global fin-fish aquaculture, it is probable that only a very small percentage of farmed fish are treated humanely at the time of harvest. In the context of European fin-fish aquaculture, guidelines on the humane slaughter of farmed salmon and rainbow trout have been in existence for perhaps one decade.

Many modern European fin-fish farmers have moved away from thermal shock (ice slurry) with or without CO<sub>2</sub> (now banned in some countries) to dry electrical stunning, in-water electrical stunning and percussion stunning. Our expertise relates to in-water, in-line electrical stunning of farmed fish in freshwater or seawater where fish are stunned within one second of entry into a ramped DC field.



**Martin O'Farrell**  
Fish Management Systems, UK



**Robin McKimm**  
Fish Management Systems, UK

We have encountered fin-fish farmers using batch in-water electric stunning systems which deploy AC fields.

We have been reliably informed that a period of about seven minutes is required to kill every fish in the batch and that, unfortunately, a significant percentage of fish exhibit carcass

damage (blood spotting etc).

Does in-water exposure to an AC electric field for up to seven minutes sound 'humane'? Does dying from asphyxia in air over an even longer period sound 'humane'? Of course, dying of asphyxia in air is also the fate of countless fish captured by commercial fishing vessels throughout the world. And this issue is now, finally, being looked at by some EU member states/agencies.

There is a desire among fin-fish farmers to improve the harvest methods they deploy. However, many require customised solutions related to available space on harvest vessels/existing fish pump availability/electric power requirements etc.

It is rarely a case of 'out with the old and in with the new' and more frequently a case of 'in with the new provided it is compatible with some or all of the old'! The requirement for the new slaughter system to be 'humane' is measured against the old and less 'humane' slaughter system in terms of efficiency (manpower requirement/slaughter rate) and processing requirements (time to rigor mortis/carcass quality targets).

When harvest/slaughter objectives are ranked, should they be weighted as part of the ranking process. Is it desirable to operate a 'more' humane system with a reduced slaughter rate or a 'less' humane system with a longer time to the onset of rigor mortis? We have presented at various aquaculture conferences and have used a provocative slide which shows pictures of fish, fowl and other farmed animals. The caption reads: 'if you had to, which one would you rather kill'? The fish is the obvious choice. Those who continue to deploy less than humane harvest methods must know that their farmed fish suffer in silence at the end of their lives. This is no longer acceptable in civilised society.

As dedicated media sponsor for **Aquaculture 2019, International Aquafeed/ Fish Farming Technology magazine took a trip across the pond to the triennial, world's largest aquaculture gathering.**

Aquaculture 2019 was hosted in New Orleans, Louisiana by the New Orleans Marriott Hotel and organised by the National Shellfisheries Association, American Fisheries Society, World Aquaculture Society (WAS) and the National Aquaculture Association.

Not since 2016 in Las Vegas had the world's aquaculture industry seen such a gathering, with the New Orleans event surpassing that of the prior Las Vegas rendition. This conference and trade show had attendees in excess of 3000 from over 90 countries and in over 300 exhibitors.

This all-round successful event had many working tersely behind the seams, and to many I mention a thank you all and a



**William Dowds**

special thanks to Mario Steal and John Cooksy who have always made these events worthwhile to attend. If only they could organise a way to reduce my 17-hour travel!

The trade show brought many new technology systems to the industry and in the coming months we will showcase many of them. The highlight of the tradeshow was the purchase of Calitri Technology by the American giant Pentair Aquatic Eco-Systems who, in the past purchased, American company Aquatic Eco-Systems and more recently Icelandic company Vaki, further demonstrating the global expansion of aquaculture with rising demand for

a more sustainable protein source.

Our next trip across the pond is to Honolulu, Hawaii February 9 – 12th 2020 and the following WAS event in Singapore, from June 2 – 5th 2020, with a little trip to my homeland, Ireland, in September 2020.