

Janet Stone – Research Fellow, Machrihanish

This article is drawn from colleagues keen to highlight her approach to work, her enjoyment of life and her care for friends and colleagues. She played a central role in the development of treatments for sea lice, showing enthusiasm and a dedication to quality rarely equalled.

Chris Sommerville, Parasitology

Janet's association with the Institute spans almost 20 years. For most of that time, she was based at Machrihanish and so her work was not as widely known amongst the Institute staff in Stirling as it might have been. The major share of her activity involved contract work with industrial partners, Schering Plough, Novartis and others. Much of the contract work which Janet and I did together involved the search for new chemotherapeutants for the treatment of sea lice on salmonids. In maintaining confidentiality with contactors, Janet would frustrate the fish farmers, desperate for a new treatment, by referring to the new compounds as Compounds A – Z. This was particularly difficult when reporting to the Scottish Salmon Growers Association conference that Compound X was effectively controlling sea lice, at a time when there was little by way of medicaments for the industry to turn to. The compound in question was ultimately revealed to be emamectin benzoate and Janet's work was instrumental in seeing the product 'Slice' to licence; ultimately producing a fistful of excellent papers which no-one has yet surpassed¹⁻⁶

Janet's meticulous gathering and recording of data also contributed to her reputation as an executor of GLP and GCP to the extent

that she was invited to write a chapter for a book which she did with co-author Alistair McLean.⁷

We had many heated discussions on experimental designs from which, in an effort to cut costs, the contractors would want to wring out every scrap of data. Janet became very creative in her experimental designs, particularly when it came to 'duration of exposure' or 'treatment in fresh water prior to transfer to marine cages'. No matter how complex the design, Janet remained clear-headed throughout, even though some trials lasted for months; she could give a master class! I found her completely reliable as a colleague and a collaborator, which is so important when overseeing work at a distance of 150 miles. Her commitment and enthusiasm for her research was unmatched in my experience.

Janet was great company to be with and working together was always good fun. Some of the most enjoyable times were doing fieldwork, especially in Greece and Turkey and a lasting memory was sitting quietly with Janet and a glass of wine after a hard day's work, watching a magnificent sunset over the Aegean Sea. We said goodbye to Janet for last time at daffodil time last year.

Bill Roy, at Machrihanish

Janet arrived at Machrihanish in 1993, initially to work on a grant-funded project to investigate novel treatments for sea lice of farmed salmon, and later on commercial contracts to develop new products for market. She loved her work, particularly working with animals, and was very proud that 'her' products have had great success in improving the welfare of farmed fish.

Janet was extremely conscientious and spent many hours examining live fish under a microscope in the wet, sometimes cold, conditions of the Machrihanish tank house. She introduced many innovations to help improve the comfort and productivity of the sea lice team during sampling. The



"Miss Pirelli" - a typical Janet comic pose

team soon had access to insulated offshore survival suits and cushioned chairs to replace the standard issue oilskins and wooden stools. She made sure that tea, biscuits and other inducements were always on hand. She even investigated the option of electrically heated wellington boots, but under the circumstances these proved too dangerous, even for the sea lice team!

Janet supervised several technicians and students during her time at Machrihanish and trained them carefully to count and stage sea lice, keep meticulous records, and maintain populations of parasites for experimental work. She was an excellent teacher whose enthusiasm for the subject, and attention to detail, were quickly transferred to those she taught. Her work was also well received by clients in industry: sea lice studies quickly became a major part of our range of contract research services and Janet developed a unique capability in this area. She put in place the equipment and procedures necessary for fast and accurate lice counting. In order to provide a source of material for experimental work she also introduced what, as far as we know, is the world's first long running sea lice farm.

Janet's tenacity and determination brought her respect and admiration from those who worked with her. She was also very generous, often on hand with suggestions and advice, a homemade cake, or a glass or two of her infamous elderflower wine. She was a unique and special colleague and friend.

Ian Sutherland, Schering Plough

My introduction to the aquaculture business was as a consultant to Schering Plough Animal Health when I ran the development programme for the antibacterial florfenicol (Aquaflor™) in salmon and trout. Having completed registration trials in the UK,



Janet with her beloved horse, Searchlight



Janet was a talented photographer; "chickens in the snow" was her best seller



Janet hands-on in commercial trials

Norway and Chile, I encouraged the sponsor to tackle the serious problem of sea lice in farmed salmon, having persuaded my former employer Merck & Co to licence an avermectin to Schering Plough for this purpose. In 1993 I was introduced to Janet Stone by Randolph Richards and Chris Sommerville as my liaison scientist within the Institute of Aquaculture, initiating a partnership that was to last the best part of a decade. Janet and I were immediately on the same wave length although she had little knowledge of the pathways involved in animal health product development.

My experience in experimental design, statistical methods and data collection required for the eventual approval of a product, was rapidly absorbed by Janet and in short order she was compensating for my deficiencies in these fields, and employing her profound knowledge of sea lice and salmon culture to best effect. Janet was the lynch pin in the development of emamectin benzoate (Slice™) for the treatment of sea lice in salmon and trout, having been involved in all stages of the development programme from dose titration in tanks at Machrihanish to commercial efficacy trials under practical farming conditions. Janet excelled throughout and was skilled at drafting results for publication.

I suppose that the highest tribute that I can pay Janet arose from my wife suggesting that I could do with an assistant at times of work overload. Having been employed in a large organisation for 24 years I had always sworn never to have an employee again but if ever I had to have one it could only be Janet Stone. We also shared an interest in riding, she being dedicated to her horse (see picture).

She will always be remembered as a conscientious colleague and friend.

Andy Shinn & James Bron, Parasitology

Here's affectionately to "Mad Jan": friend, weak tea drinker, wildlife photographer, sea louse researcher, purportedly Miss Pirelli (July 1986), painter, Lady Godiva re-enactivist, former dolphin trainer, haematologist, optimistic squid-jiggin' canoeist, wrasse

breeder, fanatical horse rider, skinny dipper, part-time Aussie, occasional Drambuie drinker and, undoubtedly Mr Frosty Mangoes best customer. We still laugh (and blush) at the way she regaled us with her exploits and the lab still echoes to her "Oo lovely man!". Always missed.

A full life

Originally from Bromley in Kent, Janet studied Medical Laboratory Science, and worked variously as a veterinary assistant and zookeeper, before taking a MSc in Marine Sciences at University of Aberdeen in 1988-89. She began her career at Stirling in 1989 working as a Research Assistant with Professor Chris Sommerville. She then took a post with Golden Sea Produce Ltd, at Hunterston in Ayrshire, where she was responsible for developing husbandry techniques for cleaner fish used in sea lice control. She rejoined the Institute in 1993, and worked with colleagues at Stirling and Machrihanish, and with industry partners, to develop safer, more effective means to control sea lice in farmed Atlantic salmon. This work played a significant role in the industry's efforts to become sustainable and environmentally acceptable and she came to be very highly regarded within the industry.

Janet was a talented photographer whose photos of fish, and fish parasites, appeared in many industry publications, include the cover of issue 29 of Aquaculture News. She combined photography with her interest in horses, and travel, and undertook many horse-riding expeditions including trips to Australia and Africa. She operated a small business, specialising in photography of horses, which donated much of its proceeds to charity.

Janet Stone, Research Fellow at the Institute's Marine Environmental Research Laboratory at Machrihanish, died in February 2007 living life to the full up to the, too early, end.

* 1. Stone, J., Roy, W.J., Sutherland, I.H., Ferguson, H.W., Sommerville, C. & Endris, R. G. (2002) Safety and efficacy of emamectin benzoate administered in feed to Atlantic salmon, *Salmo salar* L., smolts in freshwater, as a preventative treatment against infestations of sea lice, *Lepeophtheirus salmonis* (Krøyer). Aquaculture 210: 21-34.

2. Stone, J., Boyd, S., Sommerville, C. & Rae, G.H. (2002) An evaluation of freshwater bath treatments for the control of sea lice, *Lepeophtheirus salmonis* (Krøyer), infections in Atlantic salmon, *Salmo salar* L. Journal of Fish Diseases 25: 371-373

3. Stone, J., Sutherland, I.H., Sommerville, C., Richards, R.H. & Endris, R.G. (2000) The duration of efficacy following oral treatment with emamectin benzoate against infestations of sea lice, *Lepeophtheirus salmonis* (Krøyer), in Atlantic salmon *Salmo salar* L. Journal of Fish Diseases, 23: 185-192

4. Stone J., Sutherland I.H., Sommerville C., Richards R.H. & Varma, K.J. (2000) Commercial trials using emamectin benzoate to control, *Lepeophtheirus salmonis* (Krøyer) and *Caligus elongatus* (Nordmann), infestations in Atlantic salmon, *Salmo salar* L. Diseases of Aquatic Organisms, 41: 141-149

5. Stone, J., Sutherland, I.H., Sommerville, C., Richards, R.H. & Varma, K.J. (2000) Field trials to evaluate the efficacy of emamectin benzoate in the control of sea lice *Lepeophtheirus salmonis* (Krøyer) and *Caligus elongatus* Nordmann, infestations in Atlantic salmon *Salmo salar* (L.) Aquaculture, 186:205-219

6. Stone, J., Sutherland, J.H., Sommerville, C., Richards, R.H. & Varma, K.J. (1999) The efficacy of emamectin benzoate as an oral treatment of sea lice, *Lepeophtheirus salmonis* (Krøyer), infestations in Atlantic Salmon, *Salmo salar*. Journal of Fish Diseases, 22:261-270

7. Stone, J. & McLean, A. (2001) Setting up GCP Trials in Fish. In: Veterinary Clinical Trials from Concept to Completion. pp 51-63 Eds Nigel Dent & Ramzan Visanji. CRC Press 348pp ISBN: 157491121X



Janet's greatest concern was for the welfare of animals