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Spinning Farmed Salmon[1]

David Miller

Dotted up and down the coastal lochs and around the islands of Scotland are thousands of circular or rectangular pens. Each contains thousands of farmed fish, predominantly salmon. They are a visible reminder of the economic reality of the Scottish Highlands and islands, areas in which the main form of work is in tourism, fishing, farming and in some places the military or nuclear power. Yet most of the pens, shifting gently with the swell, are not owned by locals, and they do not bring great financial rewards to the area. Instead most are owned by fish farming companies such as Marine Harvest, Skretting, Norsk Hydro or AKVAsmart. The companies themselves are not local, but are almost all part of a transnational industry which is as likely to rear fish off the coast of Norway, Canada or Chile as of Scotland.

A transnational industry requires a transnational supply chain. But the rapid expansion in fish farming has taken its toll on the natural environment, and fish feed based on natural ingredients is increasingly scarce. It 'normally takes about four kilos of wild fish to grow one kilo of farmed salmon. In this way, instead of relieving pressure on the marine environment, fish farming is actually contributing to the overfishing crisis that plagues the world's fisheries.'[2] Thus the fish farming industry has been looking for alternatives. Among the alternatives tested are substitutes like palm oil, one of the least nutritionally beneficial foods in the human diet. So although much play is made of the salmon being 'Scottish' for marketing purposes, the food that the fish receive is unlikely to originate in the local ecosystem and so will not have distinctive local qualities. Or so it might have seemed until the appearance of a paper in *Science* that sparked the crisis in the Scottish industry.

On 9 January 2004, *Science*, perhaps the most prestigious scientific journal in the world, published a study reporting that farmed salmon contained amounts of toxic chemicals known as polychlorinated biphenyls (PCBs), as well as of other chemicals, that exceeded the recommended levels advised by the US Environmental Protection

Agency (EPA). According to the EPA, 'Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs.'[3]

The following analysis is not simply about industry strategy or science communication. It is not just a study of media coverage of salmon. It is an account of how scientific research which does not fit the interests of industry can be neutralised. It is a story that involves scientists, corporations, front groups, PR firms, ministers, civil servants and journalists. It shows that the public get a dangerously distorted view of science from the media. But this is relatively trivial compared with the main conclusion which is that vested interests operating together in a corporate–state two-step are able to manage science and silence critics – even where these emanate from the most prestigious scientific journals in the world. The interests of the industry prevailed in this case by means of misinformation, manipulation and subterfuge. The implication of this for theories of democracy and governance that emphasise popular consent is that consent is not always essential for the reproduction of power.[4]

For those concerned with the amplification of risk in public discourse, this story serves as a critical test case. It undermines arguments suggesting that the problem of risk is one of public irrationality or activist misdeeds. The corporations are amongst the promoters of this view because it serves their own interests, but it is also the view of a swathe of academic opinion.

Following the publication in *Science*, the industry, in a major PR effort, led journalists, policy makers and some sections of the public to believe that we were, in fact, victims of an orchestrated attack by environmentalists. This was designed, they implied, to destroy livelihoods and undermine healthy eating advice for ideological reasons. Brian Simpson, the head of the industry lobby group Scottish Quality Salmon, and the former UK minister Brian Wilson referred to the scientific study as 'junk science' and 'pseudo-science', respectively.[5] These judgements were largely accepted by the media, even though they were wrong. This chapter tells the story of how the industry turned the story round and neutralised the issue.

THE ORIGINAL STUDY

The study on which the *Science* paper was based was undertaken at the Institute for Health and the Environment at the State University of New York, Albany, funded by the Pew Charitable Trust. The study,

entitled 'Global Assessment of Organic Contaminants in Farmed Salmon', tested for levels of 'organochlorine contaminants in farmed Atlantic salmon from eight major producing regions in the Northern and Southern hemispheres'. For comparison, 'samples of five wild species of Pacific salmon were obtained from different geographic regions'. The analysis examined 14 contaminants, focusing 'additional analysis' on 'PCBs, dioxins, toxaphene, and dieldrin', which 'were consistently and significantly more concentrated in the farmed salmon as a group than in the wild salmon'.[6]

Polychlorinated biphenyls are components popularly used in electrical manufacturing until 1977, when the US Congress prohibited their use due to high levels of toxicity.[7] Dioxins are produced as a waste product of the production of some chemicals and on incineration of organic waste in the presence of chlorine. Toxaphene and dieldrin are pesticides banned in the United States in 1986 and 1990 respectively. PCBs (as a result of disposal methods) and dioxins and the pesticides (for obvious reasons) have found their way into the food chain. Along with other organochlorine contaminants, they accumulate progressively in organisms over time, meaning that those at the top of the food chain, humans, are exposed to the highest levels.

The authors stated clearly that

> [i]ndividual contaminant concentrations in farmed and wild salmon do not exceed U.S. Food and Drug Administration (FDA) action or tolerance levels for PCBs and dieldrin. However, FDA action and tolerance levels are not strictly health-based, do not address the health risks of concurrent exposure to more than one contaminant, and do not provide guidance for acceptable levels of toxaphene and dioxins in fish tissue.[8]

A key reason the authors used the EPA guidelines was that these were developed to understand multiple contaminant intake rather than intake of a single contaminant.

The results showed that farmed salmon contained levels of PCBs significantly higher than that of wild salmon, with Scottish farmed salmon displaying the highest levels in the sample. The authors recommended:

> The combined concentrations of PCBs, toxaphene, and dieldrin trigger stringent consumption advice for farmed salmon purchased from wholesalers and for store-bought farmed fillets. This advice is much more restrictive than consumption advice triggered by contaminants in the tissues of wild salmon.

With reference to the EPA's standards, they argued that safe consumption of the most toxic salmon (purchased in Frankfurt and farmed in the Faroe Islands and Scotland) should not exceed more than one half-portion of salmon per month.

The risks of other non-cancer ill effects (such as 'adverse neurobehavioral and immune effects and endocrine disruption')[9] were not factored into the advice because there are no recognised risk levels adopted by official agencies. This is a crucial point in relation to the most important finding of the researchers. Although they examined the concentrations of 14 contaminants, they undertook additional analysis on four (including dioxins). But the researchers only provided consumption advice based on risk levels for three of the contaminants (PCBs, dieldrin, toxaphene excluding dioxins). The key reason for this was, as the researchers told us, 'because of the international disagreement around dioxin risk assessment'.[10] In particular, there is disagreement on risk assessment between the EPA and other bodies such as the FDA and WHO. This became a key point on which the study was (wrongly) attacked.

SPINNING THE STORY

Within a week of publication, the study was effectively neutralised as a threat to the industry. To illustrate this we can examine coverage in the *Scotsman*, one of the two main 'quality' papers in Scotland. On 9 January the headline was: 'Eating farm salmon "raises risk of cancer"'.[11] The following day the story was already being questioned: 'Chemicals in fish are well known'.[12] Subsequent headlines became increasingly sceptical: 'Salmon is safe says US food expert',[13] 'Green campaigners fund salmon study',[14] 'Salmon scare report was flawed and biased'[15] and finally, 'Claims of unsafe fish run contrary to the facts, say scientists'.[16]

The arguments against the study highlighted the alleged agenda of the foundation which funded the research and claimed that the authors had not used the most appropriate standards for measuring contaminants.

ATTACK THE METHODS

The first major line of attack was simply to ignore the data and attack the standards against which the data had been evaluated. But in a stunning series of errors, the responses of the UK government

and the salmon industry fundamentally misinterpreted the science and criticised the paper on grounds which were scientifically irrelevant. Scottish Quality Salmon claimed that the authors 'seem to have misapplied an already suspect risk model developed by the US Environmental Protection Agency'.[17] The director of the UK government's Food Standards Agency raised the EPA model explicitly. Sir John Krebs wrote a letter to the *Guardian* arguing that the EPA

> bases its risk assessment on out-of-date science from 1991. The WHO takes into account the mechanism by which dioxins cause cancer. It concluded in 2001, using independent experts, that so long as dioxins were kept below thresholds, there would be no adverse effect upon health.[18]

In a statement at the time the FSA elaborated on this, claiming that the EPA approach 'has been evolving since 1991, but has not been finalised'.[19]

There is indeed an EPA process which has been in effect and under development since April 1991, but it is not the standard used by the authors of the paper. It is, however, useful to examine the extent to which the process that began in 1991 supports the case made by the FSA. The report 'Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds' was revised in 1994 and on subsequent occasions, with the most recent draft being published in December 2003.[20]

According to the FSA, Krebs' view was based on a report produced by the UK government Committee on Toxicity. This 2001 report was published under the title 'COT statement on Dioxins and PCBs'.[21] This report does not, however, seem to support the view that the EPA process is based on dated or flawed science. The COT report did take a different view on the EPA approach, but not on the basis that it was outdated.

The COT report notes that '[t]he EPA provided an excellent comprehensive review of the literature on developmental and reproductive toxicity, and although some new studies had emerged since it was written these did not have a major impact'.[22] So, on two counts (first, that the process was regularly revised and, second, that the most recent version was some two years more up to date than the FSA's own science) Krebs' statement that the process was based on 'out-of-date science' is simply wrong. In fact the EPA process was more up to date (December 2003) than the FSA's own preferred report (2001).

But, more incredibly, the FSA approach was not the standard used in the paper in *Science*. Rather, the consumption advice was based on a different EPA process which assessed a different set of contaminants (PCBs as a whole, toxaphene and dieldrin).[23] The *Science* article said nothing whatever about dioxins in relation to consumption. The researchers specifically excluded dioxins from their conclusions because of the varying regulatory standards. The FSA approach was, therefore, entirely mistaken.

Most critics of the study preferred to ignore the existence of the EPA altogether and claimed that the findings were well within health and safety limits. John Webster, sometimes described by Scottish Quality Salmon (SQS) as their 'scientific adviser', 'stressed that the PCB and dioxin levels found in Scottish salmon were significantly lower than the thresholds set by international watchdogs such as the European Union, the Food Standards Agency (FSA) or even the US FDA'.[24] This is almost true, but entirely irrelevant. It is the level of dioxins and 'dioxin like PCBs' that were lower than the WHO and EU standards. This is quite different to PCBs as a whole. In fact, neither the WHO nor the EU has established standards for consumption levels of PCBs as a whole or for toxaphene and Dieldrin. So the SQS approach was entirely irrelevant too.

The erroneous response of the FSA and the salmon industry set the tone for other official agencies in the United Kingdom, which explicitly rested on the FSA as lead adviser. Thereafter all official agencies presented a united front, downplaying the risk as being within WHO, EU and FDA guidelines. This was simply false. At best this approach was irresponsible, incompetent and scientifically illiterate. At worst, it was a calculated deception.

TARGETING HIDDEN AGENDAS AND ACTIVIST 'SPIN'

The second line of attack was to criticise the Pew Charitable Trust, which had funded the research, for having a hidden agenda. An organisation 'with … deep pockets and aggressive political advocacy, Pew is not only the most important new player, but the most controversial on the environmental scene', according to the *New York Times*.[25] This kind of coverage was encouraged by the aquaculture industry, which described Pew as 'having taken a position against salmon farming'.[26] According to the *Observer*, Pew was the 'research body with an anti-pollution agenda' – as if this was as bad as being 'pro-pollution'.[27] Later, Scottish Quality Salmon described the Pew Trust in a press release as 'the aggressively anti-industry US environmental

group'.[28] The trust funded the research in the same way that other trusts fund scientific research. '"It is based on sound science and the results are undeniable", said George Lucier, former director of the US Department of Health's national toxicological programme and author of more than 200 studies on toxic chemicals.'[29] In fact the critics largely accepted the science. Instead they attempted to smear the funding agency. The role played by the Trust 'was spelled out in the study, and highlighted by *Science* magazine … Any suggestion that Pew interfered has been denied by all involved.'[30]

'*Science*'s editor-in-chief Donald Kennedy dismissed the allegations', reported the *Sunday Herald*.

He said that the authors were all respected members of academic institutions. 'Pew funded the study but left the authors free to publish their results without review,' … adding that *Science*'s peer-review process 'is among the most rigorous in the scientific community'.[31]

We can conclude that the science on which the paper was based was rigorous and indeed correct, as was acknowledged even by its critics. An argument about which set of standards should have been used is clearly possible; however, the standards were not dreamt up by environmental activists but by US government officials and scientists. The Pew Charitable Trust funds scientific research on environmental pollution. But it is clear that its interests in researching pollution did not shape the conduct of the science.

This analysis has concentrated on the substance of the allegations against the study, showing that the concerns reported in the media were groundless, but not precisely how they gained circulation. Was this a conspiracy of interest by the salmon-farming industry, or was it the result of news judgements which favour controversy over routine reporting? The industry and official bodies like the FSA had their own views on the study (highlighted above). But a range of academic scientists were also quoted as critics. What was their role? Were they badly briefed? Was it a case of legitimate – if mistaken – dispute in the field of science? Or was there another reason for the inaccurate and mistaken information given out by a range of scientists?

HOW IT WORKED

Almost all the scientists quoted in criticism of the study were linked to the industry in one way or another. In some cases this is easy to discover, but in others the links required further research.

The salmon-farming industries in Scotland, British Colombia (Canada) and the United States, were at the helm of the spin machine. The key organisations involved were Scottish Quality Salmon (SQS), Salmon of the Americas (SOTA) and the Society for Positive Aquaculture Awareness (SPAA) based in British Colombia. Without the knowledge of the public in the United Kingdom and throughout the world, and of many journalists, these organisations formed a nexus of interest and action which effectively minimised the story and eliminated the public issue. They operated in tandem with PR agencies, governmental and regulatory bodies (such as the Scottish Executive and the Food Standards Agency) and even the UK Queen's property management organisation, the Crown Estate.

THE BEST SCIENCE MONEY CAN BUY

As the story broke, the international media carried quotes from a variety of university-based scientists, such as Dr Charles Santerre. He commented that he 'strongly believe[s] that all the data we have today suggests that everyone should be eating more farmed salmon'. He also stated 'I would calculate 6,000 people getting cancer over their lifetime, that's an approximation, versus potentially saving the lives of 100,000 individuals every year'. These and other statements from Santerre were reported in a wide variety of media including *The Times* (London), the *Daily Telegraph* (London), *Scotland on Sunday* (Edinburgh) and the *Press and Journal* (Aberdeen).[32] Santerre was also quoted in the *Los Angeles Times* and on *ABC News*.[33]

Further scientific testimony came from Stephan Safe, Michael Gallo and Philip Guzelian. Gallo said that, 'as a professor of public health, I would never tell anyone to limit their intake of salmon'. Philip Guzelian was quoted in an SQS media release and referred to as 'Professor of Medicine and Head, Section of Medical Toxicology at the University of Colorado Health Sciences Center'. He criticised the findings of the study, saying that the levels of PCBs found in salmon were 'not known to be of a level harmful to humans'.[34]

Given their status as academic scientists these sources were likely to be treated as credible by the media, and within hours the industry was citing their comments in the press as evidence of scientific dispute.[35] But how independent were they?

Santerre was described in the press as Purdue University's 'Associate Professor of Foods and Nutrition and an expert in the detection of PCBs'. There was no reference in these reports to the fact that Santerre

was being paid as a consultant by Salmon of the Americas.[36] Santerre was taken on on 1 January 2004 specifically to combat the publicity on farmed salmon. Nor did the press report that Gallo is a regular pro-corporate commentator. He was described in an SQS press release as 'a specialist in toxicology at the Department of Environmental and Community Medicine, Rutgers University' and this description was faithfully reproduced in the press the next day.[37] But in the 1990s he was listed in an 'expert' directory circulated to journalists by the Chemical Manufacturers' Association, the American Crop Protection Association and the American Plastics Council. The directory was issued following the release of *Our Stolen Future* – a publication that warned of the adverse health effects on humans of chemicals such as PCBs in the environment.[38]

Stephen Safe and Philip Guzelian also appeared in this directory. Safe believes a link between PCBs and cancer is mythical. In 1997, in an editorial for the *New England Journal of Medicine*, he dismissed environmental concerns as 'chemophobia' fed by 'paparazzi science'.[39] His comments excited controversy when the editorial was published, as he had neglected to disclose grant receipts of $150,000 from the Chemical Manufacturers' Association.[40]

Like Santerre, Safe was described in media coverage by his academic title as 'Professor and Director of the Centre for Environmental and Genetic Medicine, Institute of Bioscience and Technology, Texas'.[41] PR Watch has identified Safe as a 'usual suspect' who regularly appears as a scientific expert 'in a variety of anti-environmental, pro-industry forums'.[42]

The merry-go-round of scientists lending their voice to industry causes continues with Guzelian, previously a paid consultant to Philip Morris (worth $100,000 a year),[43] who has appeared regularly in court as a 'long term "expert-witness" on behalf of corporations with a history of dioxin and other toxic polluting emissions'.[44] Guzelian is a member of the advisory council of the Atlantic Legal Foundation (ALF), with a 'mission' to 'advance the rule of law by advocating limited, effective government, free enterprise, individual liberty and sound science'. ALF aims to ensure that 'courts apply correct legal and scientific principles in those cases in which scientific and other expert testimony is offered'.[45] ALF has received funding from Chevron, DuPont, Exxon Mobil, Pfizer and Texaco, as well as from prominent conservative philanthropic foundations.[46]

Guzelian is also (along with Santerre and Safe) a 'scientific adviser' to the American Council on Science and Health, a corporate front

group funded by corporations including Nestlé, McDonald's, Coca-Cola, Monsanto, Exxon Mobil, Pfizer and many others. ACSH exists to downplay risks associated with the products of its funders.

THE STIRLING CONNECTION

Back on the other side of the Atlantic, on 16 January 2004 the *Scotsman* ran the headline: 'Claims of unsafe fish run contrary to the facts, say scientists'. The authors of the article, Gordon Bell and Douglas Tocher from the University of Stirling's Institute of Aquaculture, stated that 'the research study claiming links between consuming farmed salmon and risks to health through dioxins and related chemicals are, in our opinion, grossly unfair and misrepresentative of a product which is both nutritious and healthy'. This was because '[i]n 2002, we at the Institute of Aquaculture at the University of Stirling undertook a wholly independent study to measure dioxins and PCBs in Scottish farmed salmon'.[47]

That statement is interesting for three reasons. First, like industry and government bodies, it misrepresents the study in *Science* by alleging it was about 'risks to health through dioxins'. It was not. Second, it implies that the Stirling study had been intended explicitly to study levels of dioxins (and dioxin-like PCBs) – which it had not. Third, the claim that the Stirling study was 'wholly independent' merits scrutiny.

To take the latter claim first, the funding for the Stirling study came from a Natural Environment Research Council (NERC)–LINK Aquaculture initiative. NERC is a public research-funding body, but 'LINK' schemes mean that 50 per cent of the funding comes straight from industry – in this case from BioMar Ltd, EWOS Innovation, Highlands and Islands Enterprise, Marine Harvest (Scotland) Ltd, Skretting, The Highland Council and Uniq Prepared Foods (Annan) Ltd.

Marine Harvest and Skretting are subsidiary companies of Nutreco, a global food and animal nutrition company (in 2006 they were swallowed up by Panfish). Nutreco are major players in the farmed salmon industry, as they point out on their website: 'A major proportion of salmon and poultry products are put on the market through the company's own marketing and distribution channels under the company's own labels.'[48] Skretting is a salmon feed company operating in Norway, Chile, the United Kingdom

and Ireland. Marine Harvest was the world's largest aquaculture company as well as producer and provider of farmed salmon. EWOS is primarily an aquaculture feeds company, as are Uniq Prepared Food and BioMar.

The study was therefore not independent, in the sense that it was part funded by industry. But what is it that the industry were interested in? It transpires that the research was part of a range of studies being carried out at Stirling on the substitution of natural fish-oil-based foods by alternatives such as vegetable oils and other sources. The reason for this is that the dramatic increase in fish farming is putting pressure on natural feedstuffs – making the industry unsustainable, in other words.

It transpires that the study undertaken in 2002 was not, as Bell and Tocher wrote in their article, 'to measure dioxins and PCBs in Scottish farmed salmon',[49] but initially sought to look at the effects on farmed salmon of using vegetable oil feeds. The end result was entitled 'Dioxin and dioxin-like polychlorinated biphenyls (PCBs) in Scottish farmed salmon: effects of replacement of dietary marine fish oil with vegetable oils',[50] and the report's content is mainly concerned with dioxin levels.

So, although their research was presented as independent, as investigating organic contaminants and as examining the same contaminants as in the paper in *Science*, in reality the study was partially corporate funded, was conducted to evaluate the potential use of vegetable oil as fish feed and was focused on a different class of chemicals than those that were the subject of the original study. These scientists at best face a serious conflict of interest, and at worst might appear to be acting as spin doctors for the industry which part funds their work.

THE FORCES AT WORK

The use of scientists by industry is not new, and nor was it the only technique used to undermine the paper in *Science*. The campaign by the industry was co-ordinated across borders, oceans and time zones. The three main organisations involved were Scottish Quality Salmon, Salmon of the Americas and the Society for the Positive Awareness of Aquaculture in British Columbia. We shall examine each in turn, starting in British Columbia.

THE SOCIETY FOR THE POSITIVE AWARENESS OF AQUACULTURE

The Society for the Positive Awareness for Aquaculture (SPAA) was an important element in a complex web of pro-industry lobbyists and communications actors. The SPAA presents itself as a 'grassroots' initiative.[51] In fact it is a front group for the salmon-farming industry. The SPAA website states that its purpose is 'to challenge the myths and misinformation surrounding the salmon farming industry worldwide'.[52]

SPAA staff at the time included Laurie Jensen and Leanne Brunt, both of whom were current or former aquaculture industry employees. Jensen, president of the SPAA, is also vice-president and sales manager for AKVAsmart Canada. AKVAsmart is 'the world's leading supplier of fish farming and information technology and also competence to the aquaculture industry',[53] operating in Australia, Canada, Chile, Norway and Scotland.

Jensen reportedly claims the 'SPAA is a non-profit society receiving no funding from the industry',[54] though the SPAA website notes that membership is open to 'any individual or corporation interested in promoting the positive awareness of aquaculture'.[55] The online membership form advertises a corporate membership rate of $250 and notes that the benefits of membership include 'recognition as a corporate sponsor'.[56] Jensen's role as a sales manager for AKVAsmart tends to undermine her protestations. According to one report of an SPAA event:

> Ms. Jensen also claims that she is a 'working environmentalist,' a phrase lifted years ago from the anti-environmental campaign of the forest industry … I found the working environmentalist phrase from Ms. Jensen to be slightly hypocritical however, based on a letter printed in the *Campbell River Mirror* back in March, in which she writes: 'I once considered myself to be an environmentalist. However, I no longer consider myself an environmentalist the way I used to. The current BC-based environmental groups … have mostly turned into eco-terrorist groups and (have) paid protestors against anything that is resource based and economic.'[57]

FIRST DOLLAR

Both Jensen and Leanne Brunt of the SPAA are active in an organisation called First Dollar. The registrant of the SPAA internet domain name (www.farmfreshsalmon.org), Rudy Vandermey, is also a member of First Dollar.[58] According to its website, First Dollar exists

to challenge misinformation and counter the misinformation and boycotts directed at BC resource industries and families, to educate British Columbians about the connection between resource industries and the service industry they generate, to encourage participation of resource workers and supporters throughout resource based communities, to facilitate networking outside and within all sectors of resource industry and to provide social networking and support.[59]

First Dollar also claims to be a 'grassroots' organisation.[60] Part of its mission is to 'encourage individuals and companies in resource based communities to educate the public and the media about the importance of resource industries to the entire province'.[61]

In Brunt's campaigning with First Dollar, she is portrayed as a self-sacrificing single mother supporting local industry, whose energy and drive attract media attention most 'ordinary' citizens couldn't. The *Vancouver Sun* reported a dispute in the BC area over closure of a local mill in July 2004: 'Resource towns fight back against arriviste rock stars.'[62] It noted that performers Neil Young and Randy Bachman played a fundraising concert to support emissions testing from the mill and the assessment of dangers posed to the local environment and community. According to the *Vancouver Sun*, unlike the celebrities, 'Ms. Brunt doesn't have a publicist – not many single moms working in aquaculture do'.[63] The fact is that Brunt is herself a professional publicist. In addition to being the founder of First Dollar and founder and vice-president of the SPAA, she is also employed by the PR firm Greenspirit Strategies Ltd and is internal communications manager for Panfish Canada. Panfish is a Norwegian-based multinational and the biggest fish-farming company in the world.[64] The First Dollar website is registered to Leanne Brunt and the contact email is her Panfish account, suggesting something more than a grassroots initiative.[65]

GREENSPIRIT STRATEGIES

Brunt is listed as a 'senior consultant' at Greenspirit,[66] a 'communications consulting firm that delivers strategic planning for sustainability issues'.[67] Greenspirit was set up by Patrick Moore, one of the founders of Greenpeace, who has become a full-time campaigner for industry interests. After leaving Greenpeace in the mid 1980s, Moore ventured unsuccessfully into the salmon-farming business. Now he makes a living writing, speaking and campaigning on behalf of the logging, aquaculture, nuclear and GM industries.[68]

The January 2004 crisis saw Greenspirit update an earlier report to criticise the Hites study and attack the tactics used by environmentalists against the aquaculture industry.[69] The report, which was commissioned by the SPAA, stated:

> The salmon farming industry is being subjected to a host of allegations related to environmental sustainability and human health and nutrition … it seems clear that these findings form part of the larger effort by activists to damage the reputation of the salmon aquaculture industry by using food-scare tactics that have no basis in scientific fact.[70]

Patrick Moore's own introduction claims that activists will continue to run campaigns of misinformation against the farmed-salmon industry. Moore champions trust in what he calls 'real experts and scientists'. In his opinion, inferred from the scientific references in the report, it would seem that Patrick Moore's 'real' experts are those who – like him – are paid by industry.

The input from British Columbia was a classic use of the third-party technique, the PR ruse of creating and marshalling fake 'grassroots' organisations to create the impression of widespread support for industry interests. Laurie Jensen recounted in an aquaculture industry presentation in July 2005 how her 'small group of dedicated individuals were able to initiate change and promote the positive awareness and education of Aquaculture in British Columbia'.[71]

SALMON OF THE AMERICAS FAKE WEBSITES

In January 2004 the main fish-farming lobby group in the Americas, Salmon of the Americas, launched several fake websites to direct web traffic towards their own website. Domains such as www.pcbfarmed-salmon.com, www.pcbsalmon.com, and www.pcbsinsalmon.com were used by SOTA to offer 'concerned consumers a biased interpretation of fact and fiction about farmed salmon and PCBs'.[72]

These web domain names had been registered on 26 August 2003 by Steve Bleezarde of a company called Market Action.[73] Market Action is a PR firm headed by Alex Trent, the executive director of Salmon of the Americas. Both organisations are based in offices on Nassau Street (194 and 209) in Princeton, New Jersey. Market Action was hired by Salmon of the Americas in July 2003 just after SOTA was created by amalgamating the North and South American salmon farmers associations.[74] The websites were taken down in early 2005, when they had served their purpose.[75] The fact that they were

registered in August 2003 suggests that the industry was prepared for the eventuality of criticism over four months before the publication of the paper in *Science*.

For instance, www.pcbsalmon.com

instructs readers not to worry too much about the toxins in farmed salmon because 'PCBs and similar compounds are so widespread in the environment that they are in the air we breathe, the water we drink and swim in, and the foods we eat … They are virtually impossible to avoid.'[76]

All the websites featured links to the others, as well as to the Salmon of the Americas website, but nowhere did any of the sites indicate that they were run by the industry, a classic deceptive PR technique.

SCOTTISH QUALITY SALMON'S PR AND LOBBYING

Scottish Quality Salmon played a major part in the PR campaign to undermine the Hites study. The initial response by the SQS communications department was to mobilise 'scientific adviser' Dr John Webster. SQS worked with London PR firm Chrome Consulting to develop key messages and brief Webster. A document obtained by Spinwatch gives Chrome's own account of the campaign, written for an international PR industry competition:

Our actions during the first 36 hours of the crisis were to:

- Thoroughly review the *Science* paper, analyse inaccuracies, agree stance and brief internally
- Prepare and issue initial media statement to c.600 named UK media contacts as well as MEPs, MSPs, civil servants and via newswire distribution, some 22,500 international media outlets[77]

SQS and Chrome then issued a 'second statement focusing on the international scientific condemnation of the paper and the health benefits of regular salmon consumption'. This focused on quoting the corporate-linked scientists noted above. Chrome's account reveals the following actions:

- Liaise closely with the Food Standards Agency to clarify its stance on the issue and likely actions and advise on the Scottish Quality Salmon stance
- Update the Scottish Quality Salmon website and link statements to healthy eating information

- Monitor news coverage worldwide and act swiftly to address negative comment[78]

Chrome Consulting's assessment concurs with the analysis in this chapter that the campaign was a great success:

The very first stories to appear focused on this crisis as a major food/health scare, yet within hours media were clearly and consistently reporting doubts about the veracity of the *Science* paper's conclusions. Within a day key media became actively hostile to the paper, its authors and backers, and strongly supportive of the Scottish salmon industry. In all, some 78% of all the 843 items of monitored print and broadcast media coverage included comment and views from Scottish Quality Salmon, either directly quoted or expressed through a third party.[79]

The use of 'third-party' appeals involved scientists recruited by the industry. SQS acknowledge that they co-ordinated their spin campaign with the SPAA and SOTA and that they had regular contacts with Charles Santerre, the SOTA consultant.[80] Two out of three international links on the SQS website in June 2004 were those of Salmon of the Americas and the SPAA.[81]

THE PHILOSOPHY OF SALMON SPIN

Scottish Quality Salmon, along with the rest of the industry, sought to undermine criticism of salmon farming using classic manipulative PR techniques. This requires that ordinary citizens are seen as partly irrational and thus in need of appeals and campaigns which work at the level of 'emotion' and 'perception'. This was well understood by the early PR pioneers, such as Ivy Lee, whose view was that democracy put the 'crowd in the saddle' and that this required 'courtiers' to flatter and caress the crowd much as kings and queens had been flattered and caressed in former times. This approach was described approvingly by Walter Lippmann, one of the earliest PR theorists, as the 'manufacture of consent'.[82]

We can see this approach in the internal documents circulated between SQS and governmental bodies in the United Kingdom, which were obtained under the Freedom of Information Act. In February, March and April 2004, SQS commissioned market research to find out how the public had responded to the news about salmon. They found that 'the farmed salmon industry has had its profile raised and some people do not like what they saw'. The problem was, therefore,

how to change the perceptions, rather than the industry. Thus the researchers delved into the public response which is alleged to be 'impressionistic, rather than rational'.[83] A 'rational model' in which consumers 'weigh evidence' would suggest that 'SQS should keep arguing its case to persuade doubters'.[84] 'In fact', the researchers note, 'this is not a good model'. The researchers examined both tabloid and broadsheet readers and found in the latter case that 'there was nonetheless, even for them an emotional underpinning'.[85] To counter this, 'it is essential to remember the non-rational aspect of any communication. That is, even when arguing a rational case, great attention should be given to the overall impression made, whether in advertising or PR.' 'It should not', they conclude, 'be assumed that the facts will speak for themselves.'[86]

The market research found that facts might encourage people to remember what is wrong with farmed salmon. 'A rational only response e.g. "toxins within European limits" prompts poor reaction.'[87] So, instead, the manipulative approach was taken: 'health benefits very persuasive'; 'Pew Charitable Trust and bias good secondary angle'. The strategy to be developed from these findings was:

- Don't provoke the negatives.
- Deal with the impression in balance with the facts.
- Visual imagery can be positive or negative.
- Use third-party endorsement.

'Educating consumers' therefore meant countering 'negative misinformation' and 'normalising' impressions of salmon,[88] before 'moving on to more emotive, lifestyle messages'.[89]

In the post-crisis phase, SQS provided writers with facility trips to Scottish salmon farms. Documents released under the Freedom of Information Act record that '[t]wo national consumer journalists visited Scotland and met with fish farmers at an industry event, visited SQS and a fish farm. Coverage is expected soon.' According to the documents, 'both journalists were very positive following the visit, explaining how their concerns had been allayed'.

In the recovery phase, notes Chrome Consulting, highlights included:

activity to publicise the Food Standards Agency's positive recommendations on oil-rich fish consumption (specifically including Scottish farmed salmon); and close work with the BBC to maintain fairness in its major contribution to the

ongoing debate, a crisis-specific episode of the 'Should I Worry About … ?' TV series (the answer being a resounding 'No').[90]

The success of the recovery strategy depended on changes in public resistance to salmon, which could be influenced indirectly, not least via lobbying of government.

SQS LOBBYING

SQS employed the lobbying firm Grayling, which has New Labour connections, to target the parliaments in Edinburgh, London and Brussels. In January an information shot was distributed by email to MSPs, MPs and MEPs. Grayling provided a monitoring service for SQS and advised on lines to take when approaching decision makers. The communications campaign involved SQS lobbying the Food Standards Agency. Meeting with them on 5 April 2004, SQS attempted to persuade the FSA to support them more openly.

Documents released under the Freedom of Information Act show that SQS asked for access to any new data on toxicity 'prior to publication' and offered to supply data on contamination to the FSA. But, they asked if 'it would be treated as "commercial confidential"'.[91] The FSA note of the meeting describes SQS as 'very nervous' about bad publicity and about the possible findings of government expert committees on toxicity of dioxins. They also record that 'throughout the meeting SQS appeared to want the Agency to publicly endorse the eating of farmed salmon, and in particular that produced by SQS members'. The minute also records that SQS 'would like the Agency to be more supportive of salmon as a healthy food and of their strategy for improving the quality … of their product'.

In response, the FSA officials 'emphasised that FSA advice relates to oily fish, of which salmon is one species, and that we would not endorse the eating of any individual fish species over others'. In conclusion they noted that 'our role is to put the consumer first … and we could not be seen as endorsing specific products or companies'.[92]

Yet by 24 June the FSA had reversed this position and specifically singled out salmon as safe to eat. 'Is the advice on eating farmed salmon different to other types of oily fish?' they asked in a FAQ page on their website: 'No, the advice on farmed salmon is the same.'[93] No wonder Chrome Consulting mentioned this in their account of spinning salmon: 'Highlights … included: activity to publicise the

Food Standards Agency's positive recommendations on oil-rich fish consumption (specifically including Scottish farmed salmon).'[94]

The reversal is not surprising. The UK Food Standards Agency was the lead agency in determining UK and Scottish government responses. It was set up to restore public confidence in government after the Ministry of Agriculture, Fisheries and Food was discredited as being too close to industry. The FSA was compromised from the beginning by drawing on the same civil service personnel who had previously worked in MAFF. Its first head, Sir John Krebs, was a devotee of corporate science, being both an outspoken advocate of GM food and a critic of organic food.[95] Krebs was also an adviser to the Science Media Centre, the corporate-funded spin organisation which promotes GM. He had links to the Social Issues Research Centre (another corporate-funded organisation which campaigns to influence the reporting of science). He was a member of the SIRC 'Forum' on Guidelines on Science and Health Communication, along with other advocates of corporate science, such as Dick Taverne of the corporate-funded front group Sense about Science.[96]

Board members of the FSA included an adviser to Social Issues Research Centre (Jeya Henry);[97] an adviser to Sense about Science (Richard Ayre); a former vice-chair of Quality Meat Scotland (a meat industry promotional group); an owner of shares in Unilever and Cadbury Schweppes (Graham Millar); a former Mars executive and an active member of the International Life Sciences Institute (the leading food industry front group) (Maureen Edmondson); and a vice-president of the Farmers' Union of Wales (Alan Gardner).[98] The new (in 2005) chair of the FSA, Deirdre Hutton, has shares in Glaxo-SmithKline, Tesco and Unilever.[99] This is the body which consumers are supposed to believe is 'independent' of the food industry.

'NATURAL IS NOT IN IT': ADVERTISING FARMED SALMON

Chrome Consulting was responsible for the advertising campaign run by SQS in summer 2004 in order to restore confidence in farmed salmon. The campaign was designed specifically to correct 'the messages communicated by those that have tried to discredit salmon farming'.[100] In addition to general media advertising, the campaign involved distributing educational leaflets, postcards and posters to journalists and retailers. SQS reported good results for the campaign, estimating that 25,322,000 adults saw the television commercials 2.4 times, leading to 52 per cent of all adults in the

United Kingdom being exposed to their messages.[101] With the slogan 'naturally they're the best', the advertisements presented a misleading account of the industry.

The industry campaign benefited from direct state support. The Scottish Executive helped finance the propaganda campaign to the tune of £1.5 million. The industry received a further £80,000 from the Crown Estate. The Crown Estate is a property company that has 'extensive marine assets throughout the United Kingdom, including 55% of the foreshore and all the seabed out to the 12 nautical miles limit'.[102]

THE SCOTTISH EXECUTIVE CONNECTION

The public money the Scottish Executive, the devolved administration in Scotland, ploughed into the ad campaign is unsurprising since the Executive has an open commitment to the fish farming industry. On the day of publication of the *Science* study, it joined the industry chorus. Official documents show that by 4.15 p.m. on 9 January 2004, Executive spin doctor Stephen Orr had already issued a statement in the name of the minister. 'Below are lines in Allan Wilson's name given to the media', he wrote in an email to colleagues.[103] The Executive statement simply emphasised the faulty judgements of the FSA: 'The FSA have confirmed that PCB and dioxin levels in Scottish salmon are significantly lower than the thresholds set by the FSA, EU, WHO and indeed the US FDA.'

Their statement bears an uncanny resemblance to that issued by the industry: 'PCB and dioxin levels found in Scottish salmon were significantly lower than the thresholds set by international watchdogs such as the European Union, the Food Standards Agency (FSA) or even the US FDA.'[104]

The rationale for the Executive position is expressed forcefully in the 'background info' to the statement, which notes that Scotland has the third largest aquaculture/salmon industry in the world.

> The industry supports more than 6500 jobs in some of the most economically fragile, fishery dependent, areas … accounting for around 50% by value of all Scottish food exports. The salmon industry is the single most vital development in the economy of the Highlands and Islands in the last 30 years producing more income than beef and lamb combined.

Devotion to the industry is maintained despite Marine Harvest, the biggest operator, being named by the Scottish Environment

Protection Agency (Sepa) as one of the 16 worst polluters in Scotland. A fish-processing factory run by Marine Harvest in Fort William was accused by Sepa of 'unlicensed releases to the environment resulting in a report to the procurator fiscal'.[105] Marine Harvest and the rest of the industry were no doubt glad of the steadfast political and financial support they received from the Executive. On 19 April 2004 Scottish first minister Jack McConnell opened a Marine Harvest fish farm in Mallaig and was presented with a pair of gold salmon cufflinks.[106] Jack McConnell's brother Iain was at that point a fish-farm manager with Marine Harvest.[107]

CONCLUSION

The campaign to destroy the credibility, and crucially the news value, of the study in *Science* was a stunning success. Within a week it was off the news agenda. The campaign also meant that future work by the scientists involved got markedly less coverage. The industry in Scotland was able to call on government to fund its propaganda campaign on the health and safety of farmed salmon and it was able to rely on the Food Standards Agency to support their line on the science. This was so even though the FSA's analysis was at worst entirely mistaken and at best scientifically illiterate, since the paper in *Science* was widely agreed to be correct. This unedifying tale suggests that the civil service and the government, in consort with the industry, are willing to put the needs of industrial-scale aquaculture ahead of public health and sustainability.

In such circumstances, it is instructive that the International Public Relations Association awarded an international PR prize to Chrome Consulting who ran the campaign of misinformation for Scottish Quality Salmon.

The conclusion we can draw is that the public received from the mainstream media a distorted view of the potential risks and as a result they are not in a position to be able to make sensible judgements on risk. At a wider level this story also shows how decisions taken in corporate boardrooms, PR headquarters and government offices have direct effects on what information is available and on what decisions are taken, often with no input from popular opinion and with no regard for the truth. It is only by exposing this kind of deception and campaigning for democratic controls over political processes and corporations that science communication can perform a democratic function.

NOTES

1. This chapter draws upon documents uncovered via the Freedom of Information requests to the Scottish Executive, Food Standards Agency and Crown Estate as well as other unpublished documentation. Copies of all the documents referred to here can be found at the Spinprofiles website, <http://www.spinprofiles.org>.

   The chapter was written with the aid of research carried out by three students on my course on globalisation and anti-globalisation at Stirling University. Thanks very much to them for all their insights. I have been asked not to name them for fear of blighting their careers.
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