

Confronting the 'perfect storm'

This series will chart the international experiences of a small band of UK fire officers as they learn to tackle strategic and tactical issues arising from climate change: floods, hurricanes, severe storms, writes **David Lane**



all photos: David Lane, Lane Jefferies Fire and Marine Consultants

THE ENDEAVOURS OF this group of British fire officers are also being documented through a film for public broadcast that will show just what these local emergency responders are doing to protect their communities. These articles will follow the film script of the unfolding story as British representatives share their expertise and experiences with colleagues across the international rescue and firefighting community.

The world is experiencing a continued and worsening onslaught of globally warmed, weather-driven destruction, evidenced by high wind speed storms and catastrophic floods, like those in the Rhineland, the Danube floodplains, South and North America, Asia and elsewhere.

British Fire Services which have examined the full range of risks facing their communities have identified a rise in numbers of environmental events, and it is not just recent incidents such as Boscastle (CRJ Vol 1 Issue 1) and Carlisle that demonstrate a real and present danger.

Hereford and Worcester Fire Service (H&WFRS) in the UK has a long association with flooding events. Over the past 15 years,

one-in-ten-year floods on the UK's longest river, the Severn, have occurred on average every two years. One of its major tributaries, the river Team, has suffered a one-in-15-year flood event each year for the past five years. This major UK flood plain has also suffered two-one-in-50 year wide area flood events since 1998.

Sea threat

Of course, the major life and property threat from weather related disaster in British and European lowland countries still comes from the sea. Although early warning systems have improved greatly since the devastating 1953 North Sea flood surge, millions more people now live in the areas which, in 1953, were empty agricultural flood plains. Regardless of cause, be it tidal surge or prolonged rain, it is clear that communities and the lives of first responders face an ever increasing risk.

So the UK, like many other nations, faces the probability of huge flood inundations from its rivers and the risk of flooding from the sea due to tidal surge.

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In June/July 2004 the first national test of the disaster management arrangements put in place by the UK's *Civil Resilience Act* took place. 'Exercise Triton 04' was the first national flood event exercise of its type and magnitude. It replicated the 1953 tidal surge affecting the coasts of Southern and Eastern England, the Thames Estuary, North Wales and the County of Gwent. Multi-agency players worked from a range of local Gold Command centres, at regional levels and the Government's Cabinet Office Briefing Rooms (COBR) level.

A post exercise Environment Agency report identified many issues needing improvement, while noting that Exercise Triton 04 did not test tactical matters.

UK Fire and Rescue Services have been given new powers under the *Civil Contingencies Act* and many are responding to the expansion of their role provided for in the *Fire and Rescue Services Act* of 2004.

The question that must be asked is whether the country has the civil resilience to deal with such flooding events: are emergency service

The film producer's thoughts...

Picture whole areas blackened by fires, trees dead, desertification effects, lightning flickers as another hurricane looms, it's maybe year 2012 in my head, as I drive across beautiful Britain, USA flight-bound via Gatwick to film the UK tactical team training for action. Did I waste my carbon neutralising money for these trips? Chaotic thoughts about climate chaos are indelibly linked in my mind with the tasks of the next few weeks. We wrestle with the seemingly conflicting global warming weather effects of heat and major inundation, but that's the future and we must prepare for it now.

Thirty-seven Celsius. Is this the future? No, it is the temperature here, and now in North Carolina; yesterday was the start of the hurricane season. In Washington, the Federal Disaster Agency (FEMA),

criticised for its response last year to Hurricane Katrina, stands ready for the 2006 season with a new leader, a larger cache of supplies and more high-tech systems. Homeland Security Secretary Michael Chertoff (whose department includes FEMA) is quoted as saying that FEMA is: "Much more prepared than we were last year or any previous year".

But there is some dissent and media reports of disaster-response experts, members of US Congress and FEMA employees expressing scepticism.

The new Director, R David Paulison, former Miami Dade Fire Chief, insists the agency is ready for the new season.

He lists examples – up to five times as many supplies, new systems, such as satellites that can send real-time video to FEMA HQ to show what is

happening and GPS equipment tracking – all sound very impressive.

In the US system, FEMA's job is to support local and state responders, not take over their role, so self help and preparation is stressed. In the states that tend to be hardest hit, disaster / emergency response officials are also working hard. While being reportedly cautious but optimistic about FEMA's added capabilities, they appreciate better than anyone that however good the support response, it may be up to 72 hours after a storm before help arrives.

What are 'we' doing in the UK? We need clear vision to get our response act together, and, equally importantly, the courage to turn research projects into reality.

That is what all this effort is about...

plans effective and is their command structure robust and resilient enough? Would the Gold, Silver and Bronze command systems cope with a widespread major national event?

Although the emergency services received unanimous praise for their response to the London bombings on July 7, 2005, and COBR was quickly established, in emergency services terms this was only a 'level 2' incident. The flooding event replicated by Triton was categorised as 'level 4' (the UK's categories of incident range from 1 – local incident, to 4 – Catastrophic national event).

Other questions relate to Britain's response abilities. Are the tactics correct? Do strategic and tactical level control functions work seamlessly? Will dynamic risk assessment and swift water rescue techniques work? Are rescuers trained sufficiently to face the tremendous risks to life in these hazardous conditions?

Thousands of people died in 1953, and some suspect that history may well repeat itself. The Easter floods of 1998 in the UK further highlighted weaknesses in the country's preparedness for responding to a national scale flood emergency. Several years later, Triton 04 highlighted the fact that those key issues had still not been addressed. It is clear that tens of thousands people face a growing risk and that this challenge must be confronted.

Put simply, the vital skills to deal with major scale flooding are all too rare. Despite the scale of recent UK flood events, they do not represent anything approaching a realistic worst case scenario. If we are to prepare to deal with a new dimension of flooding risk, we need to accept the scale of potential events. In making our preparations, we must learn from communities who have already been through similar disasters.

The first time you meet hurricane strength 100mph winds and violent swift floodwater



The team from H&WFRS, led by Chief Hayden, were on standby for this summer's storm season. By facing real floodwater conditions, lessons and answers could be gleaned as has never been done before in this hazardous real time environment

conditions is not the time or place to improve your knowledge, understanding and skills!

During Flood Management Seminars at the British Lifeboat College last summer some answers to those questions (and frank outlines of previous mistakes) were shared with UK and European emergency responder strategists by Fire Chiefs Jeff Dulin and Tim Rogers of Charlotte Fire Department, and Jeff Cardwell Emergency Planner of North Carolina Emergency Management Department (EMDS), USA.

These veterans, along with their communities, have learnt the hard way, hammered by the

increasingly strong hurricane seasons of the Carolinas – where drowning and devastation occur on an all too regular basis. In response, on behalf of the UK Chief Fire Officers Association (CFOA), Chief Paul Hayden of H&WFRS outlined the UK's latest arrangements and his personal experiences gained as a Gold Commander responding to Triton.

After discussions on Chief Hayden's concerns for his communities, a concept plan was agreed upon. The mission was to ensure that the UK's fire and water rescue can establish the key strategic and tactical issues that affect the Fire and Rescue contribution to the management of major flood events. To catch up on lost time, it was critical that the project sought to gain from the experience of Fire and Rescue colleagues from around the world.

Tactics and strategy

Chief Hayden's CFOA facilitated project on behalf of the UK's Fire and Rescue Services was two-fold: establish strategic imperatives for the Management of Major Flood Events (MMFE) and establish protocols and procedures with regards to tactical response and rescues.

In practice, this means that the team needed to include both senior managers to act as strategic analysts, looking at pre-planning and integrated risk management, command issues and multi-agency response, along with tactical planners to identify the procedures and training requirements for any response. While the research needed to be academically robust, its purpose was to support real improvements on the ground in public and responder safety. A key part of the mission was to ensure that the results of research were publicised as widely as possible – and that they would be acted upon.

First port of call for the UK team was a fact finding visit to North Carolina to observe the

systems described by the US delegation. From that first visit, it became obvious that the UK team's research would benefit enormously from being tested in real life conditions. Finding local emergency responders to open their doors to an international team during a real life crisis is a big request. But Charlotte's Chief Officer, Luther Fincher, rose to the challenge. He issued an invitation to the team to come back and gain practical experience by 'embedding' within his own response teams during a hurricane event (should one occur) in 2006.

Experience

So from the heart of North Carolina's Emergency Command Centre (EOC) to the sharp end with Charlotte's Tactical Response Rescue Teams, the team from H&WFRS was tasked with researching and experiencing hurricane flood conditions in real time, looking to answer floodwater problems such as team typing, boat team response, logistics response and air asset deployment.

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On landing in Charlotte, the team of 12 station-based H&WFRS firefighter instructors led by Area Manager Paul Amos, were ready to enhance their existing skills and train for a potential deployment in the US.

Filming began on the North Carolina mountains, in the Nantahala and Catawba rivers. The team and their US colleagues wanted to broaden their research and skills base; but storms and conditions were getting tougher, so they trained hard, 04:15 starts and 18-hour days were common. This training part of the project consisted of:

- Helio-aquatic rescue techniques;
- Swift water rescue;
- Power boat operations in swift water;
- In-country (USA) emergency services – special operations; and
- Equipment for swift water deployments.

The widespread use of air support in North Carolina (NC) was striking. The Boscastle flash flood of 2004 (*CRJ* Vol 1 Issue 1) demonstrated the importance of helicopter operations and difficulties of co-ordinating airborne rescue of a number of people in a closely confined area. The US system, in recognition of the volumes of people who might require rescue, is based upon 'short haul' – the rescuer is suspended beneath the helicopter, rather than winched down. The casualty is collected and transported a short distance to other rescuers in a place of relative



International Disaster and Emergency Resilience

Chief Hayden has accepted an invitation to speak about the project at the IDER Conference, in Rome (see page 61) and it is intended that an exclusive short extract of the film will also be shown. The initial findings of the MMFE project will be available at the Fire Conference in Telford, UK in November (see page 64). Firefighters from Hereford and Worcester's swift water rescue team who recently trained in the US will also be available throughout the conference at the Disaster City Stand

safety before the crew returns for other casualties. This reduces air hover time and can be carried out by non-winch equipped airframes with trained rescuers who are not members of the air crew.

The team also gained valuable information from working with personnel from Charlotte FD, North Carolina EMDS and the US Geological Survey's Flood Information and Notification Systems (FINS) team. Too much happened to tell all here (please see the films), but while river training, they carried out two real rescues...

From this trip, a team of five were selected to return in Hurricane conditions – an extremely tough choice as everyone on the team proved their worth and gained the respect and admiration of their US colleagues.

From the outset, Chief Hayden's aim for the CFOA MMFE project has been to stitch together the experiences of the UK and US emergency services to provide a first class flood management strategy. This is essential if Britain's emergency service community is to respond effectively and with confidence the next time the 'perfect storm' strikes.

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■ *Next issue – The strategic team's visit to state level officials in Raleigh, NC. During the visit Chief Paul Hayden was invited by Secretary Bryan Beatty and Director Douglas Hoell, Public Safety, North Carolina, to see the command and control arrangements put in place after hurricane disasters in the 1990s. Paul was then invited to join them at the state level EOC during any event. Paul also visited a number of strategic level institutions in North Carolina and neighbouring states and word about the UK project spread to Washington. As a result, Paul received an invitation to meet with Andrew Mitchell, Director for Domestic Preparedness, Department of Homeland Security in Washington DC. This visit proved extremely useful, raising discussion on the strategic issues affecting MMFE.*

Paul left the US convinced that an ideal solution probably lies somewhere 'mid Atlantic'.

The visits also raise further questions, such as whether post Katrina, even first world countries might benefit from properly pre-planned and managed mutual aid arrangements for highly specialised rescue staff?

Author

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