Apparel and gear providers rose to the challenge to address safety issues and help make the world's oldest sailing race the most spectacular in history.

Tears, tantrums and the America's Cup

Heroes, villains, crashes and tantrums: the story of the 34th America's Cup reads like a soap opera script. Team Oracle USA, defenders of the Cup and in the advantaged position of dictating its format, decided it would be raced in 72-foot (22m) wing sail catamarans, the likes of which had never been seen. This was not surprising given its backer – billionaire yacht enthusiast and CEO of software company Oracle, Larry Ellison, who had a dream of making the San Francisco-based event the most spectacular sailing race ever witnessed and for whom pushing the limits is a raison d'être.

However, the estimated $100 million needed for participation scared off most would-be contenders, and the complexity of the new yacht design was enough to eliminate others. Only three teams emerged with pockets deep enough to take part: Sweden's Artemis Racing, backed by oil magnate Torbjörn Törnqvist; Italy's Luna Rossa Challenge, funded by Prada owner Patrizio Bertelli; and the New Zealand government-backed Emirates Team New Zealand.

Mr Ellison's mission was to make the Cup much more spectator (and therefore sponsor) friendly than previous editions, in a bid to reignite public interest in the world's oldest sailing race. Along the way were nasty confrontations, court cases, surprising twists, allegations and confirmations of cheating – and also, tragically, one death when Team GB Olympian Andrew Simpson lost his life on a capsized Artemis boat in May last year. A distraught Swedish team and a handicapped Luna Rossa were knocked out in the preliminary Louis Vuitton Cup, leaving Team New Zealand to face the Americans in the battle for the 'Auld Mug'.

Inspiring innovation

With bottomless pockets comes innovation, not only with the record-breaking vessels but also with the gear. The apparel the sailors took to the waters in was the most advanced racing sailing has seen.

German sportswear brand Puma was named official sportswear and technical supplier to Oracle, providing performance wear as well as training apparel and footwear and a replica collection for fans. Puma first entered the sailing category in 2008 when it developed a line of performance and lifestyle footwear, apparel and accessories for Puma Ocean Racing, part of the Volvo-sponsored around-the-world race. Its early successes helped to establish it as a credible sailing brand and paved the way for the partnership with the America's Cup.



Personal flotation devices by Switzerland's Forward Sailing provided chest and back support for Oracle and Artemis.

Forward Sailing

"Puma's approach to sailing has always been a little bit different," said Antonio Bertone, chief marketing officer for Puma, at the time of the announcement. "We're the mavericks in the industry, intent on shaking up the sport with campaigns, products and partnerships that reach new audiences, dial up the fun and push the boundaries of performance technology. Oracle is taking sailing to the next level – the boats are fast, the crews are dynamic and the racing is exciting to watch."

"This will be one of the toughest briefs ever given to a clothing company," admitted Oracle skipper James Spithill. "The guys on board will have phenomenal aerobic work rates, with high

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body temperatures, while needing protection from drenching spray. Not only will boatspeeds exceed 30 knots (35mph/40kph) creating wind chill, but the clothing must be aerodynamically efficient for low drag."

Emirates Team New Zealand chose gear by North Sails, an Italy-based company which produced a collection of sportswear and technical equipment. Stretch fabrics were designed to adapt to the wearer's body while being tough enough to withstand the boat's abrasive materials; apparel needed to absorb large amounts of water and dry much faster than those made from standard fabrics. They also needed to be abrasion-resistant, protective and hardwearing.

Safety first

Following Mr Simpson's death, safety rules were ramped up. Even up until race day, measures were being reviewed and updated with RIBS full of divers and medics following each yacht for fear of another capsize. The monster yachts, while impressive, were extremely difficult to sail and criticised as dangerous; even the world's best sailors had to effectively start from scratch to learn how to handle the loads and dynamics.

Both teams faced conditions similar to an extreme sport: strong winds, fire-hose-strength salty spray, and with speeds in the end reaching 50mph. Racing across the 45-foot trampolines meant footwear and gear needed to address a number of conditions: flexible enough to move quickly while reinforced against abrasion and providing protection against knocks.

It was mandatory for all sailors to wear heart monitors and oxygen tanks, which would provide about 30 breaths in the event of a capsize. They were required to carry safety knifes to cut through ropes and wear climbing harnesses, which would afford them a degree of protection by allowing them to clip onto the netting.



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Extreme loads coupled with slippery and uneven surfaces meant apparel needed to provide a high level of protection as well as flexibility and strength.

Oracle Team USA / Guilain Grenier

Personal floatation devices (PFD) supplied to Oracle and Artemis by Forward Sailing from Switzerland gave sailors some chest and back protection. "The PFD was a 50N (Newtons) buoyancy aid made with high density foam," says Forward Sailing's Grégoire Toubel. "This detail made the difference for two reasons: our PFD is really fine compared with other 50N jackets on the market, which enables wearers to move easily without difficulty, and the thermoformed foam we use provides real protection against shock. This was important, as the problem on board the AC72 was not only buoyancy but also physical protection of sailors in case of collision or sudden acceleration or deceleration."

Forward Sailing provided its standard version to the teams, which added their own modifications – a pocket to carry a spare oxygen tank, a radio, and Oracle added some Lycra with sponsors' logos. Impact vests, a trapeze harness with an inside lumbar protection belt developed with French sailing team physiotherapists and helmets with panic-release buttons were also on offer.

The New Zealand crew were kitted out with North Sails' helmets, knives, lifejackets, knee-pads and shin-guards.

Technical apparel

As well as safety, crews needed to be protected from the elements. Puma teamed up with Australian technical apparel specialist Zhik for some apparel requirements. Base layers needed to be warm, lightweight, moisture wicking and supportive. Shin pads were built into the leggings and the long-sleeved top was designed so as not to restrict arm movements, especially for the grinders.

Zhik's Aroshell Race, worn by crews in training, was a three-layer performance shell with stretch. Fully seam taped, its high-spec waterproof and water repellent material combines woven polyester with a tricot mesh and monolithic membrane. Features include a high visibility hood, a fleece-lined collar to keep the neck warm, custom-molded reflectors for increased visibility, water repellent zips and knee and seat areas reinforced with 600 denier nylon.

Puma refined its in-house Cell system for the event: waterproof 'Drycell' and high visibility 'Visicell'. It provided custom footwear for the American team, reinforced at the ankle to prevent torn ligaments as the team raced around the slippery and uneven surfaces.

Mallorcan footwear brand Camper was the official shoe supplier to Team New Zealand, creating a performance shoe that featured semi-covered laces and a microfibre upper, with a non-marking sole that provided extra grip and durability.

Era of technology

Technology also played a huge part in the new-look Cup. Each sailor was supplied with a watch that transmitted performance data specific to their position, such as wind speed and wing loads. On-board sensors delivered 26,000 figures on a central processor relaying information about all parts of the boat and gave recommendations for possible actions.

Crews wore polarised sunglasses skewed to help them read the screens and Oracle skipper Spithill went a step further, mirroring the information in front of his eyes wherever he stood, powered through a small backpack. His navigator Matteo Plazzi helped him switch information pages when required, so that he could concentrate on steering while accessing information about every part of the boat. "Wherever you look, it's there," he said. "You don't

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have to keep looking back into the boat and back at where your competitor is – it's the future."

The technology didn't stop on board. Viewers at home or on the shore could download real-time race data and apps to watch the crews in action, thanks to remote-controlled cameras fixed to each AC72. The apps used coloured lines, dots and shading to mark wind and currents, boat tracks, course boundaries and rounding zones. Film crews used GPS to aim cameras mounted on helicopters to focus within 2cm of the centre of their moving subjects.

Craig Thompson, CEO of America's Cup Event Authority, said: "The new America's Cup represents a radical shift in the way people will connect with the sport of sailing. We've looked at every component of the event from the viewer's eye so we can create customised experiences for audiences around the globe."

Drama on the water

As it turned out, Ellison got his wish: the 34th Cup continued the drama on the water that had begun on shore. After trailing Team New Zealand 8-1, Oracle made an unprecedented comeback to lift the Cup 9-8. "No one gave us a prayer at 8-1 down. It truly was one of the great sporting comebacks and felt like an absolutely huge moment in my career," said Team GB Olympian and Oracle tactician Ben Ainslie after lifting the Cup.

Another huge moment could be on the cards if Mr Ainslie leads a British challenge in the 35th Cup, due to be held in 2017 – a UK team hasn't entered since 2003 and hasn't won in its 162-year history. Other teams already preparing their challenge include Australia, Italy, Sweden and New Zealand with the race looking likely to be held in San Francisco again if Mr Ellison gets his way, although probably in smaller yachts.

Background to the Cup

- Began in 1851 off the Isle of Wight, England. Won by US yacht America.
- The first winner stated the trophy was to be "a perpetual challenge cup for friendly competition between nations".
- Held every three to five years in match-racing (two boat) style.
- Begins with a challenger series, the Louis Vuitton Cup, to decide who gets to take on the defender.
- The winner decides the format and venue of the next event.

However, one big name will be absent next time around: Puma, which has decided to pull out of sailing altogether. Brands pay upwards of $13 million a year to sponsor the major sailing teams, according to sports market research company Repucom. It said this is worthwhile for premium brands because out of the estimated 331 million sailing enthusiasts worldwide, a fifth are thought to be high earners. After reporting a surprise decline in profits, Puma said it has decided to concentrate on football and running, sports with a much bigger global following.

The 'maverick' is taking positives from its stint on the water. "Because sailing gear is very technical, Puma learned a vast amount about working with new materials and sourcing new factory options," said a spokesman. "The benefits for Puma are long term because this knowledge can transfer to other categories within the company."

Its departure leaves an empty spot for any company willing to join Larry Ellison and cast for the next dramatic episode.



Footwear provided extra grip for sailors who raced around the perilous surfaces.

Oracle Team USA / Guilain Grenier

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