

# Keeping a Level Head

Laurie K Gilbert remains calm and steady on pitching Pacific Seas - thanks to the Mako Head

At exactly midday on 11 June 1906, three classic sailboats – the 86 ft schooner Lurline, the 112 ft Ketch Anemone and the 48 ft schooner La Paloma – lined up on a start line close to the Californian lighthouse at San Pedro, to accept a unique challenge from Hawaii resident Clarence MacFarlane. As the cannon fired and the audience cheered, the three sailboats departed the west coast of the USA on an arduous 2225 nautical mile race across the Pacific Ocean to the islands of Hawaii.

Twelve days, nine hours and fifty-nine minutes later, as the Lurline navigated the big seas that run through the Molokai Channel to cross the finish line at Diamond Head, the legendary Transpacific Yacht Race, or Transpac as it is now known, was born and H H Sinclair was declared its first winner. The race is now held every second year and, in 2006, the centennial celebrations paid tribute to a truly historic sporting event.

## Disney quest

One of the most avid competitors in the recent history of the event is film-maker, businessman, sailor, philanthropist and patriarch of the Disney family, Roy E Disney. Roy challenged unsuccessfully for the illusive 'Barn Door Trophy' for most of his adult life on a series of maxi sailboats always called Pyewacket, but when Pyewacket 3 finally beat both the clock and the competition in 1997, ironically, Roy was not on board because he had sustained a broken leg in a car accident earlier that year. It was his son, Roy Pat, who skippered the winning entry and was to accept the trophy on behalf of the Pyewacket crew and Disney family.

In 1997, L'Image Cinematography was invited by a team of television producers to overcome the challenges of filming this unique race, which is driven along by the famous trade winds of the Pacific and in which none of the contestants even see each other after rounding Catalina Island.

My company had previously worked on the Kenwood Cup films in Hawaii 1990-2000, and from 1997 to 2005. We had also worked for

Executive Producer Roy E Disney on the Transpac films and followed Pyewacket to Sardinia and San Tropez as the team competed and won their class in the 2004 Rolex Maxi Series. Many of these projects were shot in high winds and aggressive 20 ft seas, dictating special equipment and operating techniques to originate the broadcast quality material required by ESPN. On the water we utilised harnesses and Schwem lenses and to give us stability offshore and in helicopters we had Ken-Lab gyros often with the latest Tyler side mounts.

## Young talent

Some time after the 2005 Transpac, TP52 class director and sailor, Tom Pollock of Newport Beach, is credited with approaching Disney with the revolutionary idea of auditioning the youngest, most talented, sailing teenagers and selecting a core crew to compete unaccompanied in the 2007 Transpac race. The idea was to provide them with training, tools and a state-of-the-art TP52 maxi sail yacht, and then put them on the start line, on their own, in competition with the best sailors in the world.

Roy and his associates thought this was such an excellent idea that they purchased Phillippe Kahn's race-winning yacht Pegasus and shipped it to Hawaii with a new name, Morning Light. Roy also realised that this teenage adventure was the perfect vehicle to bring the excitement of offshore yacht racing into cinemas around the world and, with the financial support of The Walt Disney Company, they decided to make a feature film documentary of the project. Disney camera teams would follow the teenage applicants from the audition stage to the finish line and, over an 18-month period, 538 teenage hopefuls with a dream would be whittled down to 11 young sailors who could actually realise that ambition.

## Scaling up

L'Image Cinematography was asked by the producers in Los Angeles to travel to Honolulu to test and evaluate the equipment requirements for the offshore component of the project. Unlike previous work for



Laurie operating the Mako Head at sea

LESIE DEMEUSE

the same producers, The Morning Light Project was destined for the cinema screen, not domestic TV, so we needed to improve and upgrade our solutions for 'wild, wet and windy', devised over 20 years for Betacam and PD150 acquisition. The cinema scale of the project and the availability of an appropriate

budget suddenly gave us access to an ingenious device I had wanted to test and operate for many years – the legendary Mako Head.

In 1954, underwater cinematographer Jordan Klein started Mako Productions in Florida. In 2001, he and his son set about solving



Morning Light on her maiden voyage in Honolulu BDT

PHIL UHL

"it was hardly a challenge to set it all up and stabilise everything, even though it was the first time we had ever used the device"

the problems of keeping a level horizon for offshore feature film cinematography. Eighteen months later they had a working prototype and in 2003 the first Mako Head was released commercially. The most recent credits for the device include *Miami Vice*, *Into The Blue*, *Snakes On The Plane* and *Transporter 2*.

The Mako Head is basically a self-levelling device that is placed between a heavyweight production tripod and the normal camera head. With a little common sense it is remarkably simple both to understand and to install from box to boat and it certainly doesn't require a dedicated technician. Once the Mako Head has been locked on the tripod and levelled electronically, it operates on the principle of two pistons operating at 90° to each other, automatically pushing and pulling to level the base of the tripod head in response to the changes the Mako senses in the horizon.

Phil Uhl of CSTV is an extremely experienced sailing television producer and, as the coordinating producer of the project, he fully appreciated the challenges that the Disney camera team were facing out at sea. For both the equipment evaluation tests and initial water sequences we shot for the film, Phil had procured a very wide catamaran called the Aikane that was substantially larger and more stable than any of the camera boats I had used previously. He had also hired local underwater cinematographer, Mike May, to provide invaluable camera support for the Cinealta F900R when conditions began to get a little rough and very wet.

**Rigging**

The Mako Head arrived a day before the first day of shooting and so the camera crew call times were arranged to allow Mike, Phil and me time to rig and secure the Mako



LESLIE DEMEUSE

Head in the stern of the camera boat. With the Satchler tripod locked down to a wooden camera platform, the Mako Head was attached to the tripod with an ingenious single screw and pin mechanism. A cable was then connected to the power input from one of the two large batteries supplied with the head, both of which were then stored in a dry compartment underneath the camera platform.

Once the Mako Head and the Satchler tripod legs were secure, a Ronford head was attached to the top plate of the Mako Head and the whole system was kept upright and locked in place by a single wedge plate. Moments before Mike and I powered the head up for the first time, we 'unlocked' the head by removing the wedge plate and the electronically controlled pistons offered up their version of 'relatively level! As the subtle vibrations of the top plate stopped and the combined rig stabilised for the first time, Mike and I adjusted both axes of movement with two small screws and centered the spirit level on the Ronford head. The Mako now knew exactly what the operator considered to be a level horizon – so fast, so easy and so simple!

The water was extremely calm in the Ala Wai Marina where the camera boat was moored, so it was hardly a challenge to set it all up and stabilise everything, even though it was the first time we had ever used the device. Five minutes after starting the process, the camera was both safely secured and perfectly level on top of the rig and Mike and I began to think about waterproof covers. With hindsight, probably the only



LESLIE DEMEUSE



LAURIE K GILBERT

Top and middle: The American Coast Guard organise safety training Bottom: Mako Head installed on the stern of the Aikane camera boat

mistake we made on that first day was to set our horizon level in the harbour, several hours before the actual shoot, and then power down thinking the head would remember the settings for the rest of the day. No power – no memory, so it doesn't work that way! We didn't turn the power on again until we were several miles offshore and it was then that we discovered that the Mako had forgotten everything we had taught it. For the rest of the day we battled to match the spirit level to the horizon, several miles offshore, in

pitching Pacific seas. This was the only problem we experienced setting up the head and it was a hard lesson well learnt. The following day we powered up the Mako Head before we left the calm of the marina and it was happy to operate all day non-stop (the batteries are huge and last for hours, in fact we never had to replace one in our typically four to six hour-long filming sessions. So, in the end our power-saving efforts were unnecessary anyway). In theory, the head is so simple to rig, it would be easy enough to

dismantle and reposition it as often as you liked while out at sea – setting the level horizon again would be a whole different ball game though!

**Safety at sea**

Our first sequence in the shooting schedule involved a dramatic rescue demonstration by the American Coast Guard who dropped swimmers into the sea from their Dauphin helicopter to illustrate mid-ocean recovery techniques to the teenage sailors adrift in a life raft. With the bow of Aikane facing into the seas and the Mako-mounted Cinealta F900R pointing at the action, the two pistons operated in synchronicity to neutralise the wave action and keep the horizon remarkably level.

The Mako Head has an adjustable speed control, which accurately varies the response time of the entire mechanism and, with almost no experience, we were very quickly able to match the performance of the head to a wide variety of wind conditions and wave height. It was truly astonishing to stand back between takes and watch the Mako Head strut its stuff – it's not exactly silent and there is an impressive hum as the mechanism does its job.

The Mako Head works so well that the camera eyepiece also remains

immobile – but the problem then arises that the cameraman is standing on a pitching platform and the eyepiece he is trying to look through is not in sync with the boat he is trying not to fall off. In a different situation on land, a small monitor might be the solution, but in the bright, sunny, humid, rough and very wet conditions we were working in, we would never have been able to accurately assess focus, exposure and framing. Our only option was to operate with a variable gap between the eye and the heavily padded eyepiece, with constant crash zooms for focus checks and a reliance on a solid understanding of DOF. Both Mike and I were very glad that Roy and his producer were on the boat with us for the first few days as we fought to master the shooting challenges of the conditions, because that way we all had a fuller appreciation of the potential of the equipment when we saw rushes for the first time on a quality HD monitor.

Those first three days shooting on the water were also the teenage crew's first opportunity to see, explore and sail the Morning Light. Their learning curve with the Transpac 52 maxi yacht was as steep as ours with the Mako Head but at the end of each day, both crews returned to their bases



LAURIE K GILBERT

DoP Mike May protects the camera in between takes

with a wealth of new knowledge and solid experience to build on.

**Hello Hōkūle'a**

On the last shooting day in January, the Morning Light crew was training off Diamond Head when the Polynesian Voyaging Canoe, Hōkūle'a, was towed past on the start of an extraordinary voyage by celestial navigation from Hawaii to Micronesia and then on to Japan. These intrepid Pacific Island adventurers are now showing the world how their forefathers circumnavigated the oceans and explored the Pacific – the traditional way!

At the time this article is being written, the teenage crew has

now spent several months racing Morning Light under the tutelage of some of the world's most experienced ocean navigators and racing sailors. All of the crew's mentors, especially Roy E Disney, believe that with the exemplary leadership of Jeremy Wilmott, their 21-year-old Australian skipper, the crew stands every chance of doing extremely well in the final race.

And as they head for the start line under the intrusive glare of the world's media, one camera operator will be listening to a discreet and very reassuring hum – fully aware that if he looks after the focus and the framing, the Mako will look after the horizon.

LAURIE K GILBERT

Departure of the Hokulea



**Fact File**

- The Morning Light Project: [www.pacifichighproductions.com](http://www.pacifichighproductions.com)
- The Transpac Race: <http://www.transpacificyc.org>
- The Hōkūle'a: <http://en.wikipedia.org/wiki/Hokulea>

For examples of the footage we shot: <http://www.makohead.com/index.htm>

L'Image Cinematography: [www.limage.tv](http://www.limage.tv)

**MAKOHEAD**  
**MAKOHEAD**  
[www.makohead.com](http://www.makohead.com)  
**Camera Head Stabilizer**  
**Automatically Detects and**  
**Maintains "LEVEL"**



**BPS**  
 Broadcast Production Services

Boats • Jet-Skis • Ships • Submarines • Snowmobiles • Cranes  
 Motorcycles • Skateboards • Trucks • Cars • Planes • Helicopters

[www.bps-tv.co.uk](http://www.bps-tv.co.uk) +44 (0)20 8941 1199 [info@bps-tv.co.uk](mailto:info@bps-tv.co.uk)