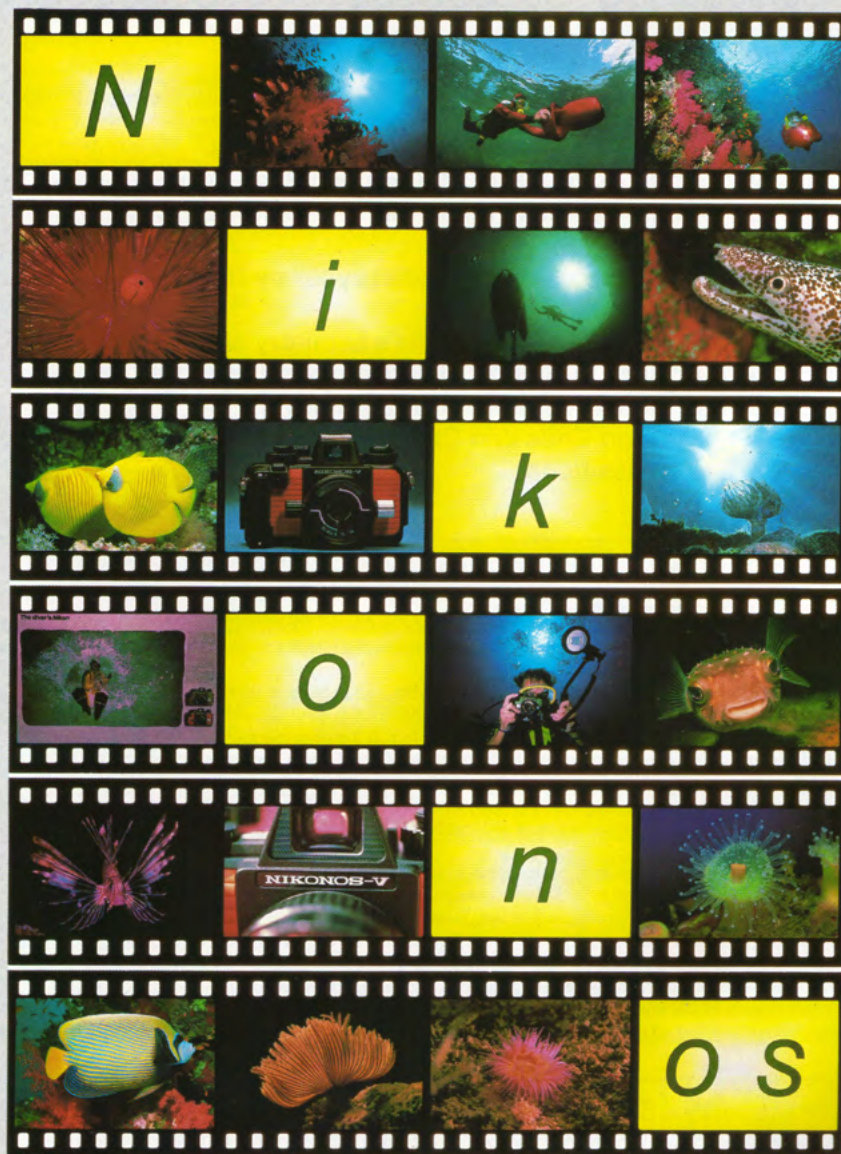


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Underwater Photography Magazine

Issue No 11
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Cover photo by Georgette Douwma

Editorial

In May this year, the BBC transmitted Reefwatch, their most ambitious live broadcast to date. It took place underwater off the coast of Eilat, Israel and was beamed across the world to an audience of millions. In the UK the viewing figures were astonishing and surpassed all the hopes of the producers.

ReefWatch was broadcast in four sections on Sunday 8th May - a short trailer in the morning, one at midday, one at 3pm and the finale at around 10pm. Such was the quality of production and the fascination of the subject that, by the time the final instalment was being broadcast, the viewing audience in the UK had swelled from 0.5 million to a staggering 10.5 million viewers - in the UK alone. In addition there is a TV measure known as the "appreciation figure" which, for Reefwatch, was in the 80's. This relates to some of the highest figures ever achieved.

The effect of this mass coverage was to establish underwater subjects as bigger box office than was previously appreciated and the result has been a mild panic to produce more underwater programmes which will be on our TV screens over the next few years.

The effort exerted prior to Reefwatch ensured a quality of reproduction which will be hard to surpass. Part of the reason for this high quality was the involvement of Peter Scoones, a name known to most for his BSoUP connection. His article in this issue about preparing and filming Reefwatch is a fascinating insight into this highly technical world. His almost unique overall knowledge of all aspects affecting underwater photography was to prove invaluable in the build-up to the event and during the live transmissions.

It is only by producing underwater work of such a highly polished nature that the underwater world will stand any chance of being taken seriously as an entertaining medium capable of attracting large audiences.

The repercussions of this immense amount of interest shown in Reefwatch can only help to redress the balance of attitude to underwater photography and all those involved in the project deserve our congratulations for a job well planned and superbly executed.

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Subscriptions are available by mail order. Annual costs are £15 UK, £20 Europe and £25 Overseas.

Gordon McSkimming shoots a Lump sucker



(Left)
This fine specimen of *Cyclopterus lumpus*, or Lump sucker, most probably a male, was captured at f11 @ 1/60 second on Kodachrome 64 at a depth of only 5 metres in Loch Long, Scotland. At 30 cms the Lump sucker is neither big or small; it can be colourful during the breeding season, making it an excellent subject for photography. This one was photographed with a Canon F1 fitted with a 50mm macro lens in an Ikelite housing. Light was supplied in the form of a Subatec S200 and a slave Sea and Sea YS20. Approximate reproduction rate 1:8

You are swimming along on one of those typical early spring dives, the ones where your hands tell you that the sea temperature is not far of its seasonal minimum. Like those "roughly toughly non ferrous and broken boat" divers you could wear a pair of thick neoprene gloves, but then of course, adjustment of camera controls would become a major task. Suddenly the numb hands are forgotten! What is that odd looking, oval shaped fish which is sitting bolt upright on the sea bed? If you own one of those many fish identification books available, and as a serious underwater photographer you ought to, identification will be immediate. You have just found what is variously called the lump sucker, lumpfish, sea hen, or to be absolutely correct *Cyclopterus lumpus*. Why will you be able to identify it so easily? To answer that question I would challenge you to find anything in N. European waters which looks vaguely like the lump sucker.

Naturally when writing about a photograph in a magazine such as this there is a requirement to provide technical details of how the photograph was taken. There is however another aspect of capturing images of marine life which often appears overlooked and that is a basic knowledge of the animal which you intend to photograph. Armed with this knowledge you can choose the correct equipment, the correct place and the correct time to obtain the required image. To this end the lump sucker provides us with an excellent object lesson.

First of all the average length of the fish is 30 cm. This tells us that a macro lens on a housed camera is the best equipment option, assuming of course that the fish is to

form the bulk of the image. Applying the same criteria to Nikonos users the standard 35mm lens will do the job but not without the inherent difficulty of obtaining sharp images at minimum focus. Either of the commonly available supplementary close-up lenses fitted to the Nikonos 28mm lens would allow excellent head on shots although framers might have to be removed to cope with awkward locations. Obviously strobe lighting is required to bring out the colouration of the fish and allow a smaller aperture with close-up equipment.

In my opening paragraph I mentioned cold hands. Not without reason! It would be pointless going armed to the teeth with all the correct equipment to the comparatively warm waters of South Devon in late summer if you expect to photograph lump suckers. Rather I would recommend the positively frigid waters of the St. Abbs area in April. The logic is quite straightforward. Although the lump sucker can be found as far south as Portugal it is a Northern species and hence is more common on our Northern and Eastern shores. Why then April you may ask? Well when you consult your fish identification books, purchased since reading this article first time round, they will tell you that lump suckers come inshore in quite large numbers during late winter and early spring. The books are all quite correct.

When diving, the specimens which you will find will almost certainly be males easily distinguishable by their bright red breeding colours. The slightly larger grey or green coloured females only remain inshore long enough to lay a mass of pink coloured eggs. In contrast the male lump sucker is a

perfect parent. Having fertilized the thousands of eggs he will stand by them until they hatch, up to two months later. During this time he will guard the eggs and continually fan them to create a flow of aerated water through the mass. Since the eggs have been laid in shallow water, usually from around 10m to about the low water mark, the male fish is frequently at risk of being cast ashore during heavy seas. To counter this the pelvic fins, (the ones nearest the front on the belly,) are modified to form an adhesive sucker. Using this appendage to clasp onto adjacent rock surfaces the male fish can remain on station by his eggs in all but the worst sea conditions. Other hazards exist especially when the eggs have been laid above the low water line where either fish or eggs may fall prey to birds or of course humans armed with a low I.Q., curiosity and a pointed stick.

After hatching, the young fish become part of the plankton and eventually appear offshore as adults. It is not however uncommon to see 2 or 3cm long replicas of the adult form close inshore during summer. The male on returning to deeper water will break a fast which began before he moved inshore to breed. So, there you have it, a little basic marine biology has told you where and when to look for your fish. When you do find him you will discover that *Cyclopterus lumpus*, one of our more colourful and certainly peculiar fish, is a real "sucker" for underwater photography.

Gordon McSkimming

World of sport from Sony



True innovations come from Sony and the Sports camcorder is another proud first from the company which introduced the Sports Walkman. Sony previously tried a Sports Wraparound case for its revolutionary Handycam M8 but the new CCD-SP5 is a complete camcorder in its own right - complete with splash resistant case.

In common with other Sony Sports products the SP5 is bright yellow - no chance of confusing this model for something else - and its stylish design is perfect for sporting occasions. As well as being splash resistant the SP5 has a 6 times power zoom lens with macro; a variable speed digital shutter to ensure that even fast sporting action is captured cleanly; digital superimpose; noiseless frame advance; date/time insert; infra-red autofocus; edit switch; flying erase head; viewfinder; LCD display and many more features.

"With all these features at your fingertips this is an ideal camcorder for the video enthusiast. It's rugged and splashproof design means that you can take it where the action really is. This is the camcorder to complement the active lifestyle whether that be water sports; mountaineering or any kind of activity which is likely to be unforfeiting on ordinary electronics equipment," says Sony Video Product Manager Jeff Taylor.

The Sony CCD SP-5 should be available from most Sony stockists from October at around £1299.95.

For further information please contact: Paul Campbell/Andrea Coppen, Sony (UK) Ltd, South Street, Staines, Middlesex (Tel. 0784 67371/67385).

New Sony Housing

Following the success of its first venture into the underwater world Sony is set to launch a second Marine Pack - sized to take no fewer than four current or imminent models.

MPK-F340 can be used with the hugely successful CCD-V90 Handycam Pro with its higher definition picture qual-

ity; the CCD-F330, and the new CCD-F340 (due September) and its Sports version, CCD-SP5 (due October).

This latest Marine Pack is similar to the original MPK-M8 in that it is simple to fit the pack and operate underwater. It is 340 x 280 x 435 mm (w/h/d) and weighs approximately 12.5 kg.

A new Marine light HVL-80DA is launched at the same time and it comes complete with battery charger. A handy maintenance kit ACC-804 is also available to keep the unit watertight. It comprises a replacement O ring, rubber packing and silicon grease in a vinyl bag. Replacement of the O ring and rubber packing annually is recommended. MPK-F340 will be available in October at around £799.95. HVL-80DA is also available in October at around £499.95. ACC-804 is available in October at around £11.95.

UP will be reviewing them in the next issue.

Amphibco Sony V90 Video housing



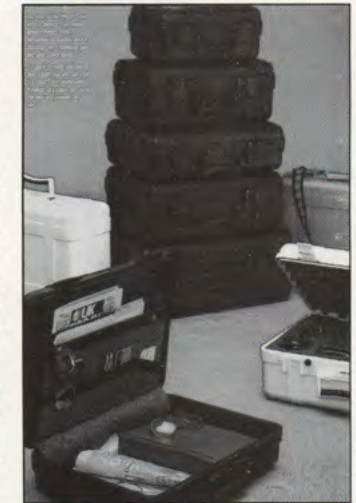
This Canadian firm have produced an aluminium housing for the Sony V90 video camcorder which has a built-in microphone, controls for power zoom, on/off, standby and a built-in wide angle lens adaptor to give coverage up to 100° underwater. Interchangeable bayonet ports allow macro shooting.

The design of the housing is really smooth and the quality of finish is superb. Internal electronics link to the remote socket on the camera to control all functions and the camera's zoom has two speeds to give a more controlled action. The rear of the housing incorporates an adjustable focus viewfinder magnifier which makes viewing very easy.

The two controls, start/stop and zoom, fall to hand easily and the housing with camera installed is very well balanced underwater.

UP will be doing a detailed review in the next issue. The UK price is expected to be around £890.

A choice of carrying cases from Underwater Kinetics



New for 1988/89, comes a range of equipment cases from Underwater Kinetics, available in 6 sizes and in three colours, silver, black or yellow, with either pluckout foam or padded partition; one version having a standard briefcase interior. All are air and water tight, being sealed with an O ring, they are waterproof to a depth of 33 feet, and will float if dropped overboard. They are fitted with a very necessary pressure equalization valve to allow easy opening after aircraft travel.

Constructed from strong and durable engineering grade, high impact ABS plastic, they can take rough treatment without fear of dents, chips or scratches. The hinge is of good quality being a full length 100% non-corroding stainless steel hinge pin. Other design features include a padded swinging carrying handle for comfort, and a useful locking capability provided for securing the case.

Model No.	Internal dimensions			Weight Lbs.
	Length	Width	Depth	
613	13.3	8.8	5.9	4.1
716	16.8	9.8	6.7	7.1
518	17.8	12.8	5.1	8.4
718	17.8	12.8	6.8	9.2
821	20.8	12.8	8.3	10.7
822	21.8	17.0	8.3	13.4

Dimensions are in inches
Weights in Lbs.

Cases are available from Sea & Sea, and Underwater Kinetics dealers.

UP with Reefwatch

Peter Scoones reveals the cameraman's view



(Left) The logistics of co-ordinating three cameramen, cable attendants and presenter Martha Holmes required careful planning and split second timing for this major live broadcast.

Pentax LX, 16mm lens, CC40 Red filter, 200asa negative film. Available light.



(Above) Cyclops, the BBC's Natural History Unit's remotely operated vehicle took up a lot of deckspace with its cable and, in the end, did not prove 100% successful.

(Left) Each camera had a small black and white monitor to view the image. The control team on the surface switched from camera to camera as required but an indicator light on the camera told the cameraman when he was live. The adrenalin flows freely as you start to think of the millions of viewers watching your every camera move.



For some years the BBC Natural History Unit had been considering producing a live underwater programme, similar to the Nature-watch series of live shows already underway.

Location of a suitable site for the programme being only the first of many problems the producer needed to resolve, I was only one of the underwater "experts" consulted on this and some of the suggestions horrified me. This is not an uncommon occurrence, for producers regularly send cameramen to locations that are most unsuitable, on the advice of persons who have obviously never had to produce underwater pictures.

Firstly the reef had to have its active time coinciding with the viewing audience. Next, the site should have a good variety of life at shallow depths, this allows both good colour rendering for the cameras and few problems with underwater duration for the diving team. Working within a few meters of the surface means that operations are sensitive to surface wave movement, this meant that any site considered had to be sheltered and workable under the widest variety of weather conditions. Another factor was that the shore needed to be close at hand as the Outside Broadcast Vehicles had to be physically connected to the sub-sea operation.

Given those factors the site almost selects itself. Even so, I had an uphill task to convince that Eilat should be considered for this site had already been rejected. Admit-

tedly, in the northern end of the Red Sea there are many sites that offer more exciting diving, but I felt the technical problems that would inevitably arise with the BBC's first multi-camera, live, underwater broadcast could more easily be solved in Eilat.

Having determined the site, BBC Engineering at Bristol was given not much more than six months to provide the complete multi-camera system for the programme.

At the time no suitable equipment was available anywhere. As I was obtaining a camera for myself it seemed sense to offer this as the third camera for the programme and, as it would have to perform identically with the BBC cameras, I sat in, as a consultant, at the engineering design meetings. I am sure the engineers must have thought, "What the hell can a freelance film cameraman tell us about Underwater Television cameras?" Even so, with Rob Brownhill,

the BBC Cameraman, I was able to advise on certain features that were adopted.

As we proceeded, the BBC's design priorities for the underwater camera diverged too far from mine. So by agreement my camera differed from the BBC units both optically and mechanically. The BBC went for the smallest practical housing configuration, with add on handles containing zoom and focus controls. Each of these substantial cables plugging into the rear mounted multi pin penetrators. The size of these handles and the radial penetrators necessary due to the diameter of the tube seemed to negate the laudable concept of a small housing.

My camera was designed to have as clean an outside as practical with controls integral with the fixed handles. A slightly larger diameter tube permitted the camera to be housed without losing the surface capability and also gave space for the BBC to



(Left) With space at an absolute premium, presenters Mike DeGruy, Tony Soper and Eugene Clarke squeeze onto the aft deck of the support ship Suellen with the Israeli camera crew.

(Below) This friendly frog fish can claim to be the only one to have appeared in the living rooms of millions of people throughout the world, such is the attraction of the underwater world and the all-embracing coverage of television. Pentax LX, 50mm macro lens, Subatec S100 flash, Fuji 100 negative film. 1/60th @ F11



fit the extra electronics needed to interface the surface system.

It was interesting to see the two different designs side by side. Naturally I prefer my approach but there are points to be made for both.

The cameras were only a small part of the total Reefwatch system. Special umbilical cables had to be designed together with surface units controlling power supply, camera functions and cable length equalization. Talkback communication was a concern of mine, having experienced problems in the past with the system adopted i.e. surface to diver/cameraman. My experience being that the surface cannot

know when the diver is exhaling and this can render communication unintelligible. In the event, the sound quality of the down comms was so high (BBC) that few problems occurred.

We were to carry out one week of pre-recording from Suellen - the dive boat owned by Lucky Divers in Eilat - and the first site we stopped at was the "Temple" next to Ras-um Sid. This was also the very first time any of the cameras had been used underwater. Also the first time Martha had used the bubble helmet in the real sea. So we were just going to check out everything. In the water I collected my camera from the clip and sank to the bottom some 9 meters

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AMANDA LEVICK, OONASDIVERS U.K.



(Left)
High quality images require meticulous attention to all camera functions, not least being specks of dust on the optical system. Peter Scoones makes a final check before assembling the camera housing.

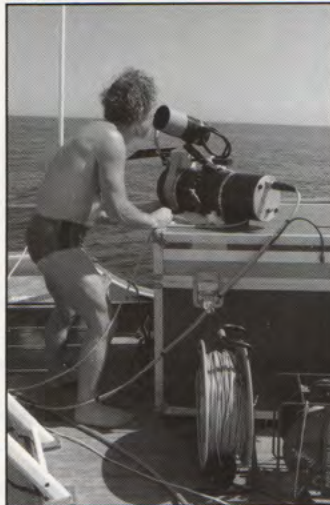


(Left)
The forward cabin of the Suellen was converted into an on-site control room. Alistair Fothergill savours one of the few quiet moments and views some of the day's sequences.

down, Robin Hellier the senior producer paying out my cable. Rob Brownhill like myself had not had his camera in the sea before. A few minutes were spent adjusting the viewfinder position, brightness and contrast. Trying out the handling, balance, focus and zoom. All seemed perfect. Then the communications sprang into life, preceded by an ear piercing whine. This is known as "Tone" and is a sound signal used by the engineers to set up the equipment levels. Then the picture in my viewfinder disappeared and the grey scale known as BARS appeared. Although the viewfinders are monochrome, bars are a setting up colour signal. I looked over to Rob, he shrugged and pointed a thumb at the surface. Alistair Fothergill's voice came down the comm's loud and very clear. "Can you hear me Rob?". "Beep". (yes - the cameras had only a beeper system for communicating with the surface, at that time a full system of beep signals had not been worked out. It was one beep for yes, two for no.) "Can you hear me Peter?" - "CAN YOU HEAR ME PETER?" - "Beep". It took me a moment to remember where my beep-button was.

"Ooo Kayeee - I see there is a Napoleon Wrasse around, I'm sending Martha down with some eggs. Can you find a good spot and wait there?" I beeped and Rob beeped. I looked around, then over to Rob and pointed to a clearish area nearby. The Napoleon Wrasse circled and came in close

(Above)
Peter Scoones looks through the monitor to check the camera port for any signs of blemishes which may appear on the screen and lower the quality of presentation.



with that "What sort of divers are these that don't have eggs?!"

Rob and I practiced with our cameras following the wrasse, zoom long to check focus, then back to wide. Pause to adjust viewfinder monitor, position, brightness and contrast. Panning with the camera



(Above)
Left to right, cameramen Andrew McClenaghan, Rob Brownhill, Simon Graham and Peter Scoones with Martha Holmes on the foredeck of the Suellen. Surface briefing was essential to the smooth running of Reefwatch even though each cameraman could talk and listen to the surface controller.

in conditions of high ambient light could cause too much light to fall on the viewfinder obliterating the image.

A lot of "excited Alistair" sounds were coming down the line. Then, life as an underwater cameraman, in control of my pictures came to an end.

"Zoom in tight Peter - good, Hold that, we're recording". A red light comes on in my viewfinder. "Rob take the wide - hold that". "Follow, follow - tighten, slowly, fantastic! Keep that fish there. It's disappearing! Where the hell is Martha?" "I'm coming" puff-puff.

"Peter- Rob, keep that fish there!" "Cameras show me Martha- Martha- Go to that rock just in front of you". "Here?" "Just a bit to the right, - no, other way. Camera right". "Which camera?!"

"Martha's cable is in shot! Get it out . . . Someone get that cable OUT!". No one underwater moves. "WILL SOMEONE GET THAT — CABLE OUT, Quick the fish is back!". Sounds down the comms of quiet talk.

"Sorrreee. Martha, signal your handler to get your cable out of shot. Please". "Is that O.K.?"

What had started as a system check out for the equipment, ended out as the Napoleon Wrasse feeding sequence being transmitted during the live Reefwatch broadcasts.

The use of a multicamera set up, allows intercutting between pictures preserving the immediateness of the action in a way that is hard to capture on film.

Whilst the two camera set up is a



(Left)
Peter and his "Scoones Cam" venture out. The "flag" over the lens provides shade and minimises flare. The umbilical carries communication and video signals to the surface.



(Left)
Mike Burgess tapes the microphone to secure it inside Martha's helmet. The combination of the mike and the bubble helmet gave a quality of sound reproduction never before achieved underwater.

minimum, addition of a third greatly extends the Director's scope. Each of the cameramen has to offer pictures that compliment those from the other cameras.

As a film cameraman I found that the disciplines required of a television cameraman needed considerable mental re-adjustment to my usual technique.

For the Reefwatch live broadcasts, my first task was to go into the water with Georgie some ten minutes ahead of the rest. This was so that we could quickly recce the site and show the Director, via the camera, what subjects were present and where. Subjects had to be selected to allow the presenter - Martha Holmes to be able to do her bit to camera in the wide and medium shots whilst close-ups of the relevant creatures were offered from the third camera. During the rehearsals we had identified a number of creatures that could be shown but it was necessary to find which of them was present at the time and the order in which they could be shown.

In the control cabin Alistair selected the subjects and I would remain in position to point out to the others the location of the subjects. It was more important than ever to avoid disturbing the bottom - it would not be truly wondrous to show millions of viewers a sand storm! With three cameramen, Martha, Georgie lighting, and four cable handlers all concentrated in a few square feet of ocean, this was no mean feat.

The first show was early in the

morning when it was still dark. Once all were assembled and cameras had been lined up, the lights were doused so as not to disturb the reef. Then there were a few minutes when we all froze like dummies, waiting for transmission time. It is quite an experience to be at the bottom of the Red Sea in the pitch dark listening to all the sound traffic, as all the satellite links are made. First London would come up, shortly followed by the USA. A short count down and silence.

The opening music swells up in my ear. Pressing my return video button puts the programme title on my viewfinder screen, followed by Tony Soper as he goes into his introduction.

To my left the other cameramen. Masks only lit by the blue glow from their viewfinders.

"Stand by cameras, lights on. Wide on 5 first, 3 and 4 hold steady for opening shot".

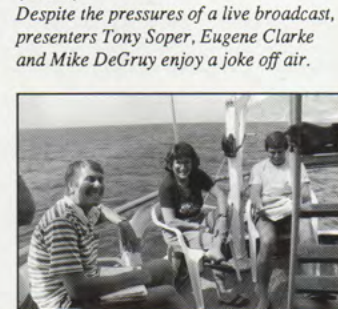
A red light came on in my viewfinder, I suddenly have a living creature in my hands sending pictures into millions of living rooms around the world.

The underwater crew could then go on standby again for there was a few minutes introduction of Martha and the Bubble Helmet, then she had to get to the location from the boat. Martha arrived and started her presentation, describing the reef at night.

"Camera 3's sleeping fish just left. Camera 5 can you find one?"



(Above)
Assistant producer Alistair Fothergill and Ami Ben Zvi, owner of the Suellen and Lucky Divers, Eilat



(Below)
Despite the pressures of a live broadcast, presenters Tony Soper, Eugene Clarke and Mike DeGruy enjoy a joke off air.

Panic! Martha had only a few words to go before referring to "Sleeping fish". Camera 5 - ME! Look around the camera at the reef, while zooming wide. Locate an orange spot that I hoped was a sleeping Anthias. The brightly coloured fish does not show up well on the black and white viewfinder, so I can locate a recognisable shape nearby to zoom into. Pan left, Georgie re-directs the light, there focus, red light. "Thanks 5". That's when the Decorator Crab, scripted shortly, decided the light was too bright, and dropped inaccessibly out of sight. Between my shots I offered pictures of the vacant crab spot to Alistair above, with no response. Just before crab was due on, Georgie's hand appeared in front of my lens with another Decorator Crab, to place it on a convenient rock.

Alistair. "Thank you 5". The crab was quite important, being the last creature still around at that location, all others had retired thinking no doubt that dawn had arrived.

"Thank you cameras and Martha. Next location please".

Text by Peter Scoones

Photos by Peter Scoones and Georgette Douwma

UP in the UK at St Kilda

Brian Pitkin reports and illustrates



(Above)
Plumrose anemone stands out against a red encrusting sponge. NE face of Stac an Armin, Boreray. Nikonos II with 28mm lens and Nikonos close-up kit, Ikelite SS75 at 1/60th and f22 on Ektachrome 100.

St. Kilda is an imposing, remote group of four islands together with a number of smaller, equally impressive stacs lying about 100 miles west of mainland Scotland and 50 miles beyond the Outer Hebrides. Thought to be the remains of an extinct volcano, which was active about 70 million years ago, the islands are the most westerly in Britain save for Rockall. The main island of Hirta rises to a height of 426m above sea level and is separated from the smaller island of Dun in the south east by a narrow channel. Just over one mile ESE of Hirta, Levenish rises majestically out of the sea. North-west of Hirta lies the island of Soay, famous for its sheep, and about four miles from Hirta to the north-east lies the island of Boreray and its two associated large stacs, Stacs Lee (The Blue Stac) and Stac an Armin (The Warrior's Stac). Numerous further stacs occur just offshore from the vertical cliffs of the larger islands. These cliffs make access virtually impossible except at Village Bay on the south-east of Hirta.

The islands have been inhabited sporadically since the late neolithic period, although the population only ever reached a



(Below)
Soay sheep grazing the cliff tops on Hirta. Boreray with Stac Lee and Stac an Armin can be clearly seen about 4 miles across the water. Taken with a Nikkormat and 55mm macro lens at 1/125 and f11 on Fujichrome 100.



(Left)
Visibility, limited by Gannet guano showering into the water from Stac, Boreray meant concentrating on macro photography. This Sagartia anemone was taken with a Nikonos II, standard 35mm lens with an extension tube, Ikelite SS75 at 1/60th and f16 on Ektachrome 64.

peak of about 200 people. In 1930 the last of the islanders, unable to subsist in an ever changing world, were evacuated to the mainland and St. Kilda remained uninhabited until 1957, when a radar tracking station was established and persists to this day. Ownership of the islands, which can be traced back to 1373, passed through numerous hands until the Marquis of Bute bequeathed them to the National Trust for Scotland in 1956.

The islands are a must for anyone interested in wildlife, as the St. Kilda wren and St. Kilda field mouse are unique to the islands. Additionally about a million sea-birds, including the world's largest gannetry and thousands of puffins and other auks, guillemots, razorbills, great skuas, fulmars and kittiwakes, as well as large colonies of storm and Leach's petrels occur there. A population of about 400 grey seals are concentrated mainly around Soay Sound between Hirta and Soay and Glen Bay, opposite Village Bay on Hirta. Dolphins and whales are frequently sighted around the islands. Nearly 10% of the British flora have been recorded from St. Kilda's mainly grass moorland habitat. So there are plenty of interesting and challenging subjects to photograph above water (a telephoto lens would be very useful for birds).

The surrounding sea is oceanic blue and the visibility can be up to 30m. The water is cold, varying from 9.5 degrees C in May to 13 degrees in August, so a dry suit is essential if you are taking photographs. A reliable diving computer would be a very useful accessory as it is all too easy to dive deeper than you anticipate in the clear waters.

The towering cliffs continue almost vertically underwater, no longer covered with hundreds of nesting seabirds but frequently clothed in a spectacular community of marine animals, seemingly all larger and brighter than any you will encounter anywhere else in British waters. There are many underwater caves, caverns and arches, some large enough to sail a submarine through. Add to these the grey seals that will follow you mischievously, at a distance, on most dives and you have an excellent venue for some exciting underwater photography. But be warned, the seas around St. Kilda can be rough and dangerous. Despite this or perhaps because of it and the deep water, there are no diveable wrecks. There are a large number of fish in the seas around St. Kilda as the vast numbers of seabirds testify, but you are unlikely to see many whilst diving. Ballan Wrasse, Pollock, Lumpfishes and Conger Eels are occasionally encountered.



(Above)
Diver at 30m photographing the abundant marine life in the spectacular arch which cuts through the Sgarbhstac, Boreray. The arch is 20m wide at the seabed, 50m from the surface. Taken using a Nikonos II with a 15mm lens and an Ikelite SS75 at a 1/60th and f4-2.8 on Ektachrome 64. Cropped and duplicated on Kodak duplicating film.

Your underwater photography will be concentrated on scenic shots and divers and seals, using wide-angle lenses, and macro shots of the marine life, using close-up lenses and extension tubes. And you will not be disappointed. The underwater scenery is fantastic and the numerous gullies, caves and archways provide a natural studio for diver and seal shots. The diversity and sheer vigour of the anemones, cup corals, sea fans, jelly fish, sponges, fanworms, crabs, lobsters, sea slugs, sea hares, top shells, cowries, urchins, starfish and myriads of equally fascinating creatures will overwhelm you for choice.

To dive St. Kilda is not easy as few boats go that far. Once there, the choice of the many dive sites may be limited by prevailing weather conditions, although these are probably no worse and often better than other Scottish islands. When you visit, try, if you can, to take your scenic and seal shots when the sun is on the water, as the towering cliffs cast a dark shadow. You can practically guarantee to see seals on most dives around Hirta, Soay and Dun away from Village Bay and if you have a model or co-operative buddy use the arches and cave mouths to frame him or her. Use fast film (try the new Kodachrome 200 if you haven't already) both underwater and on land if you

get the opportunity to go ashore, to make the most of the available light.

Take your underwater macro shots when the cliff face is in shadow. Avoid shooting straight down, try looking at your subject from different angles, take time to compose your shots and bracket if in any doubt (dark reds in particular absorb light). If you make a night dive on the sandy bottom of the Village Bay, where your dive boat will almost certainly anchor whilst you're in St. Kilda, you should find at least one if not several, of the brightly coloured Lesser Octopuses. Try to avoid taking shots of these very active subjects with the light coloured sand as a background, get down on the bottom and attempt lateral views with the open water behind your subject, otherwise you may well overexpose your pictures. If you are using a Nikonos Close-up kit on a 28mm lens which is ideal, remove the framer to avoid antagonising your subject too much and prevent it taking over the photographic session by clinging on.

Finally take plenty of film, for use both on land and underwater, more batteries than you think you will need (although charging facilities are available on some boats), a copy of Peter Rowlands' "Underwater Photographers Handbook", in case you have any equipment faults, and a set of

tools, plus at least one back-up camera and flash-gun, as you will be days away from any repair facility.

A number of dive-boats will get you from Oban to St. Kilda. I sailed on the 91 foot schooner rigged sailing yacht "Jean de la Lune" and spent a memorable two weeks visiting and diving the islands. Contact Linda Wilson, 75 Oxbgangs Road, Edinburgh, EH10 7BA (Tel. 031 445 4686) for next years sailing dates and prices.

For further information about diving St. Kilda consult the excellent little publication "St. Kilda - A Submarine guide" by Gordon Ridley, obtainable from the author at 94 Brownside Road, Cambuslang, Glasgow, G72 8AG (Tel. 041 641 4200), price £2.50. This includes information on 185 sites in the archipelago, a list of very readable books about the islands, references to other diving articles and a useful checklist of the marine life. Harding, Merriman & Namcarrow's "St. Kilda - an illustrated account of the geology", published in 1984 by HMSO at £15.50, includes a very useful supplementary map (scale 1:25000) showing submarine depth contours (although the book itself is of little interest to divers).

Brian Pitkin

UP Overseas in Fiji with W.Gregory Brown

For scuba divers, the South Pacific is a dreamland destination. Simply by closing the eyes we are compelled to visualise a remote island paradise jutting out of a warm tropical sea. White, powdery sand beaches fringed with elegantly curved coconut palms are surrounded by magnificent blue lagoons. Naturally, in this dream state we envisage world class diving in unexplored waters rich with marine life. Upon returning to reality, we have only to look on the world map and find the Fiji Islands. It is here our dream can come true.

Fiji encompasses a group of over 500 islands, islets and tiny atolls scattered across thousands of square miles of the South Pacific in an area known as the Koro Sea. A member of the British Commonwealth, the Fiji's are situated at longitude 177 E, latitude 17 S, approximately 2200 miles east of Australia and 3100 miles southwest of Hawaii (about 12 hours flying time from Los Angeles). The Fijians are strongly pro-western making this enchanting south Pacific island nation a preferred destination of US and Canadian citizens. In fact, one of the welcoming characteristics of these islands are the Melanesian people with their friendly nature, warm smiles and special homespun charm. The major island in the Fiji group is Viti Levu. This population centre is home to the international airport at Nadi and the capital city, Suva. The majority of the dive operations are found here as well. Several excellent sites around Viti Levu are frequented by these land based operations. Bennga Atoll is but one of them. At Frigate Passage, on Bennga's northwest side, clouds of tropicals dance in the sunlit shallows. In deeper water the mighty pelagics - tuna, jacks and sharks hover adjacent to the drop off, out in the mystical blue. All along the walls of the passage, huge sea fans of various colours sway in the current giving the underwater photographer some fine wide angle opportunities.

Undoubtedly, the most popular shore-based diving available in Fiji is found on the island of Taveuni. Just off the northern shore of this small, picturesque island lies the famed Great White Wall. This underwater precipice begins in 50 feet of water and drops vertically into the abyss. The scenery is nothing short of breathtaking. Soft corals adorn the face of the wall in a smorgasbord of colours. The reef community is also prolific as are the pelagic spe-



Combining clear water and colourful corals, Fiji is a very special location in which to take underwater photographs. Taken on the Great White Wall with a Nikonos V, 15mm lens, Kodachrome 64 film and a SubSea Mk150 strobe. 1/90th @ F11

cies, primarily due to the tide-driven current that continuously channels nutrients and plankton through the area. The Great White Wall is, in large part, the reason why Fiji is known as "The Soft Coral Capital of the World".

While land based diving in Fiji is typically first class, there remains several remote areas in this archipelago that can offer world class diving. A live-aboard vessel is required to access these destinations and fortunately there are several luxu-

rious motoryachts operating out of Suva that can fit the bill.

One of the premier offshore areas for diving is Great Astrolabe Reef, an enormous reef complex bordering the deep water Kadavu Passage. Astrolabe is situated about 40 nautical miles due south of Viti Levu (6 hour boat ride from Suva). Usbourne Pass, an impressive Astrolabe site was my introduction to Fiji's magnificent underwater resources! As soon as I entered the water at Usbourne, it was appar-

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(Above) A flame skunk-striped anemone fish peaks out from its protection to be captured by a Nikon F3 in a Tussey housing, 105mm macro lens, Kodachrome 64 film and an Ikelite 225 strobe. (Below) The paradise of Fiji.



ent that this wasn't going to be an ordinary dive trip. Visibility was a full 200 feet. Healthy hard corals carpeted the bottom and colourful tropicals were literally swarming over the reef. Massive crevices separated sheer walls of living colour. Exquisite soft corals in varying shades of red, orange, pink and purple hung off the walls vertical face. In one fin stroke I could move from 30 feet of water to 3000 feet of water. The scenery was absolutely breathtaking! North Astrolabe reef was a macro photographers paradise. On any given dive, there were at least 15 species of butterfly fish, nudibranchs, feathery crinoids and more on display. At Solo Light, on Astrolabe's northernmost tip five enormous manta rays performed an incredible underwater ballet that I shall never forget. For

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(Above) Tiera batfish hang under the boat and were taken with a Nikonos V fitted with a 15mm lens loaded with Kodachrome 64 film. A SubSea Mk150 strobe balanced the light at 1/90th @ F8

a full twenty minutes these gentle giants graced our presence before gliding onward. Once back on the boat, we simply looked at one another, quite speechless. It was clear to us that no words could ever describe this wonderful encounter.

Whilst the diving at Astrolabe is phenomenal, the ultimate thrill has to be a dive charter into Fiji's remote Lau Group. Approximately 150 miles southeast of Viti Levu, these waters are still largely unexplored by divers. Consequently, every day is an adventure into the unknown, bringing to life that pioneering spirit that dwells within us all.

Trigger Rock in the Northern Lau Group was undoubtedly the most extraordinary dive of the trip. Prior to our first dive at Trigger Rock, no one, and I mean no one, had ever dived there before. An underwater pinnacle, the top of Trigger Rock came within fifty feet of the surface. It's diameter was 250 feet across and beyond that, the sides plummeted precipitously to 2000 feet below. Excitement and curiosity were at peak levels as we prepared to dive. Immediately after entering the water, an inquisitive school of Tiera batfish paraded by for a thorough inspection. They seemed almost tame, letting us approach at extremely close range whilst photographing them. Next, several grey reef sharks made a graceful appearance, circled once and faded into the mystical blue. In the distance I could see a school of 200 pound dogtooth tuna feasting on hordes of hapless baitfish just beneath the surface. All this and the dive was only ten minutes old! Swimming to the opposite end of Trigger Rock I spotted a hawksbill turtle contentedly feeding on some encrusting sponges. I fully expected to see this beautiful animal make a swift exit as I approached. Instead, to my amazement, the turtle swam up to me, took a long, bewildered look and continued to the surface for a breath of air. Upon returning the undaunted hawksbill swam to the exact location it had vacated, less than two feet from my camera lens. Meanwhile schooling barracuda, some 500 strong, had appeared just overhead. The sight was a visual masterpiece providing an exhilarating denouement to what was truly a fantasy dive.

Every year, for the past three years, I have returned to dive in the Fiji Islands. The haunting beauty of the Fijian reefs continues to cast its spell, calling me back again and again. Even now, as I write, I can only think of my next visit to the place where time stands still, where cerulean waters are rich with living treasures, and where diving is not just a sport, it is a dream come true - the Fiji Islands.

W.Gregory Brown

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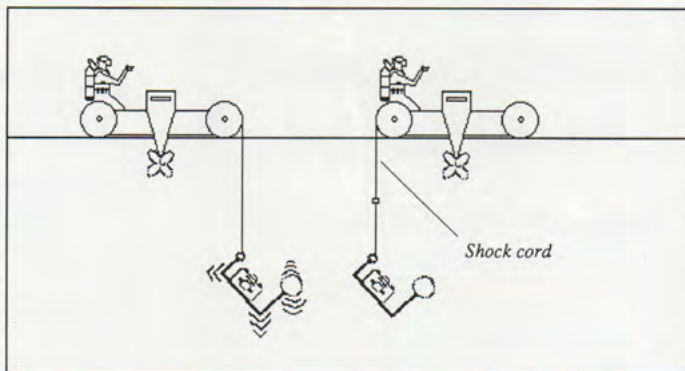
Handy hints

Jolted cameras?

Having spent a considerable amount of money on your underwater photographic equipment, you do not want to see it pulverised by air cylinders or knocked overboard.

The solution is simply to keep it out of the way by attaching a down line to your camera and hanging it over the side of the boat assuming you have faith in the line and your knots, your gear will be out of harms way whilst a boat load of divers are kitting up. This makes it mentally easier when entering and exiting the water, knowing that your gear is both safe and accessible.

Make sure though, that the down line is shorter than the water is deep - otherwise your gear may be taking a trip to the repair dept.! Also if the down line is made up of two cords: one being elasticated, the boat may ride the swell but, having a slight give in the cord, results in the camera staying steady on the down line without any serious jolting which may otherwise occur.



Moisture: Dome ports and housings
by Andrew Mounter

Care for your Nicads

In this age of battery power, the Nickel Cadmium, or Nicad battery is being used in more and more appliances. Being rechargeable they give a considerable saving as compared to other battery types. However, how many of us know how to look after them properly? Many people tend to use them for example in a flash unit for one roll of film and then charge them up again even though they are only half used. Under such use the cells will "remember" this cycle of charge/dicharge and the full potential of the batteries may be lost. Once a set of batteries has been used it is far better to continue using them until they start going off, say in a personal stereo - here the music will deteriorate as they run down, at which point switch off the stereo avoiding total exhaustion of the cells which is also not recommended. Then charge them up.

"R" -rewind or repair?

Anyone who owns or uses a Nikonos III, IV or V, will be familiar with the "R" setting on the camera - this of course being for rewind. In this setting a disengaging pin is held down permitting the film sprockets to free turn. It is not a good idea to leave the camera at "R", as if there is moisture present it is possible for the disengaging pin to seize in the down position which would require a major strip down of the camera. As with all repairs this may be both costly and inconvenient.

Changing bags

The photographer's changing bag is a surprisingly little used item, but one which is extremely handy - not only for loading your own films on to spirals for processing, but should the camera require to be opened with a film still inside, or the rewind jams, it is one of those simple bits of kit which prove invaluable - even in the field of underwater photography. It folds flat and takes up very little space.

Magnified images

Having processed the roll of E.6 film that you have just exposed, then like any discerning photographer you may desire a closer examination of grain size and sharpness of the image. No loupe or magnifying glass? Simply remove the lens from your camera - the Nikonos 35mm lens is perfect, and view the film in question through the lens - inside element towards the film. This permits a reasonable magnification and subsequent examination of your images, making it easy to ascertain sharpness, and quality. The aperture should of course be set to F2.5 for maximum brightness and coverage.

Got any handy hints?

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UP meets Dr John Randall

This remarkable fish expert by Hillary Hauser

Ichthyology, or the study of fishes, can be a very slippery business. This is something I found out early in my freelance journalistic career, when I embarked on the treacherous path of writing descriptive copy for the various marine tropical fishes found around the world. I made lots of mistakes in those days - lots and lots of them.

However, it would have been even worse were it not for Dr. John E. Randall, who inevitably came to my rescue with his many publications on fishes. These books and scientific papers were liberally illustrated with useful pictures of the fishes, taken by Randall himself in a unique style he has developed over the years.

Randall, who is probably well known to many British divers for his many books and papers on fishes, has devoted his life to uncovering the mysteries of the marine fishes of the world. He is living proof that the end product of scuba diving reaches far beyond having a good look around at the bottom of the sea - it is because man can breathe underwater that scientists know much more about sea creatures than before the advent of scuba equipment.

One of Randall's important contributions to the science of fishes is his large file of fish photographs. These images are a key aid in identifying and cataloguing fishes from the tropical seas of the world. There are few books on coral reef fishes that don't have some Randall information or a Randall photograph. Randall's pictures are typically side profiles of fishes against either a black or green background.

Capturing an image of a dead fish that accurately reveals its live physical characteristics is a challenge, yet Randall has worked out a technique for accurate fish photography in his own, unique way. He published the technique in the scientific journal *Copeia* in 1961.

Basically, the key thing to photographing fish that have been removed from the water is speed. Captured fishes must be photographed soon after they are brought to land, while their colours are still close to nature's original intent.

I watched Randall undertake an unscheduled, spontaneous photographing session one evening, while I visited with him at his home in Hawaii. Marine biologist/author E. H. Chave, who also lived in Honolulu, rushed into his house with a few small fishes and a crab she had collected from a submarine in 600 feet of water that afternoon. She wanted Randall to photograph



(Above)
John "Jack" Randall inspects some of the specimens in the British Natural History Museum on a rare visit to the UK.



(Above)
"A dangerous profession". A small cleaning Goby (*Gobiosoma randalli*) cleans a Great Barracuda (*Sphyraena barracuda*). Ikelite housing with a Nikon F2 and 55mm macro lens with Ektachrome 64 film.



(Above)
Captured specimens are photographed as soon as possible to capture their colours before they fade. Dual 650watt lights are used to provide coloured backlight and frontal daylight.

them, because the animals had never been recorded on film.

To my untutored eye, the fishes and crab were all very dead-looking creatures, lying frozen at the bottom of an ice chest.

Randall stopped everything he was doing and went to work. He laid out each fish and the crab on a styrofoam board, pinning the fish fins and crab appendages up with tiny insect pins. Then, he painted the specimens with concentrated formalin, and in a few moments the fins stayed erect without the pins.

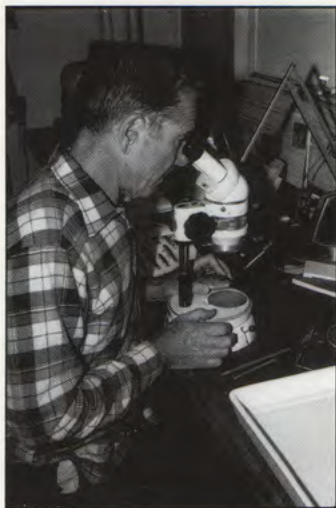
Each specimen was then placed in a low-sided glass aquarium over an opening in the table. By placing the photo tank over the open space in the table top, the shadow of the fish goes through the glass. To eliminate glare from the bright metallic parts of the camera reflecting on the surface, he covered the front of the tank with black cardboard.

Below on the floor was a background of flat black for the light-colored specimens and a light flat green for the dark ones. When shooting with a green background, Randall lit the background with photofloods to remove the last vestiges of shadow.

Working with one fish at a time, Randall covered each of them with water. Then, positioning his camera directly above his subjects, he shot straight down, the 650-watt lights illuminating the subjects from each side.

Randall has used this photo technique to produce thousands of scientifically valuable photographs of fishes and invertebrates. Many of them are published and all of them are stored in four separate refrigerators at the Bishop Museum in Honolulu, where Randall is Senior Ichthyologist.

Taking underwater photographs of fishes during his collecting trips was a move Randall initially resisted. For one thing, fish collecting (important to determine things



(Above)
The job of cataloguing the fish in an area is a neverending task and requires enormous time peering down microscopes to establish exact details. The study and identification of fish has been a lifetime's work for John Randall, a rare breed of scientist who can communicate well with the layman and, despite his close association with them, still gets tempted by a tasty fish dish on any menu.

are important, Randall says, "because many fishes lose their life colour upon death." "This is particularly true of iridescent colours, like the bright blue of damselfishes", he adds. "The only way to document these colours is to photograph the fishes when alive, either in the sea or an aquarium."

Another important scientific reason for taking underwater photographs of fishes is to portray the fish in its natural habitat, Randall points out. And still another is to "capture certain behavior on film such as cleaning or spawning."

Randall's underwater photographs of fishes have appeared in a series of publications issued by the British Museum called Indo-Pacific Fishes, and they are important parts of his published and proposed books on fishes of the Arabian Gulf, Hawaii, the West Indies and South Seas.

Scuba diving is a vitally important tool for today's Ichthyologist, since it gets the scientist in the very world where the fishes live. It is a fascinating and many-sided science, one which has taken many twists and turns over the years. Sometimes a fish believed to be one species has turned out to be two when something such as a different gill raker count is discovered. Or, a recently named fish will have a previous description, which means the earliest name takes precedence over subsequent ones.

Randall is an avid scuba diver. I have been diving with him, each time off Hawaii and each time with me trying to keep up with him although I am 20 years younger than he is. He moves around the reef like a shot, interested only in his fish subjects.

Randall has named over 200 species of fish, and 21 have been named randalli in his honour (as well as two genera) by other scientists. On the shelves of the fish collection of Bishop Museum are still more fishes residing in jars of alcohol, waiting to be described. Since 1965, when he joined the staff of Bishop Museum, he has raised the number of lots of specimens (one lot being those specimens of the same species taken at the same time and place) from 5,000 to nearly 32,000. While diving, he has observed intermediate individuals that linked different-named juveniles to adults, and he witnessed the courtship and spawning of different-coloured wrasses and parrotfishes previously thought to be different species but which in reality were sexual colour phases of the same species.

Randall's favourite fish families are the surgeonfishes, wrasse, parrotfishes, squirrelfishes, hawkfishes and groupers. He has concentrated on the classification of Indo-Pacific fishes - those of tropical and subtropical Indian and Central and Western Pacific oceans.



(Above)
A shoal of soldierfish (*Myripristis vittata*) shot in the Maldives. His next book will cover the fish of the Maldives and should be out next year.

He has many books in progress, to add to those books that have been published (Caribbean Reef Fishes, Red Sea Reef Fishes, Hawaiian Reef Fishes, and Sharks of Arabia.) We can expect books on the fishes of the Arabian Gulf, Easter Island, the Maldives, South Seas, and more on Hawaii and the West Indies.

And all of these will come with his own photos, taken in a style he has developed his own way through perseverance and hard underwater work.

Hillary Hauser

Dr John Randall's Books

Sharks of Arabia	£26
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Back to Basics Maintaining O rings

Unlike land cameras which operate in a much more tolerant atmosphere, underwater cameras and land cameras in housings must be carefully prepared prior to each dive to ensure that all of the accessible O ring seals are correctly maintained. This doesn't take long and, if done properly, will ensure your camera doesn't flood during the dive.

Most underwater cameras and housings have several O ring seals, most of which can only be maintained by stripping the camera/housing (inaccessible O rings) and a few (accessible) O rings which the owner/operator can and must maintain prior to each dive. You do not need to worry about the inaccessible O rings on a day to day basis but these should be checked annually and replaced/regreased.

The accessible O rings are very simple to maintain and it will only take a couple of minutes to carry out.

There are two types of O ring seal - compression and piston. The main seal on a Nikonos 1Va and most housings is a compression type and that on the Nikonos 11, 111 and V and the Sea and Sea Motor-Marine 110 and 35's is a piston.

COMPRESSION O RING SEAL

PISTON O RING SEAL

There has been a great deal of speculation about the efficiency of the compression seal following several Nikonos 1Va floodings but the compression seal is just as effective as the piston except that it requires a little more care when maintaining them.

The piston seal has a wiping action when the sealing surfaces are closed so any potentially dangerous debris such as a hair may well be wiped out of the way and not cause any problems. Such a hair across a compression seal will almost certainly cause a flood so more care is needed with compression seals. It only needs just one hair to fill a camera up with water.

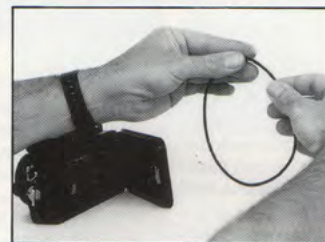
Prior to a diving trip you must clean

and regrease all of the accessible O rings. On the Nikonos 1, 11 and 111 these are the main body, rear lens and flashplug. On the Nikonos 1Va and V it's the same plus the battery compartment. On the Sea and Sea cameras it's just main seal.



In order to carry out thorough maintenance you must remove the O ring from its seat. This can be done without any instruments by squeezing the O ring round to form a loop which you can lift and pull it out of its groove. If this proves difficult, you could use a soft edged blunt instrument like the edge of a credit card to lever the O ring out. Please be very careful if using this method as O rings and O ring surfaces can be nicked very slightly and this could cause a flood.

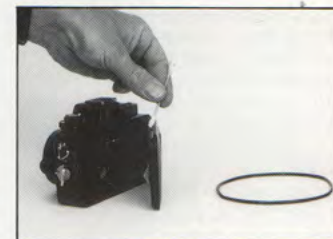
Once removed, you can inspect the O ring for damage. There should be no marks on it whatsoever. If there are, it is better to change it rather than risk the camera for the sake of a low cost O ring.



O rings must be lightly greased with silicone grease. This keeps them supple, less prone to damage and easier to seat. The best time to do this when you are as stable as possible and not trying to balance on a pitching boat in the rain. The practicality of underwater photography will mean that there will be times when you need to reload on a boat so just be extra careful not to let lenses roll around and that O rings don't get placed on dirty surfaces.

Greasing the O ring is best done by

squeezing a small amount of grease onto your finger and then pulling the O ring through it until it has an even coating. No excess grease should be left on the O ring whatsoever. All those who believe that loads of grease equals a better seal are fooling themselves and it will only be a matter of time before they either have a flood or grease will ooze into the camera and affect the shutter.



The O ring grooves/surfaces should now be inspected and wiped with a lint-free cloth or any cleaning material which will not give off any hairs/fluff. Cotton buds/cotton wool on sticks are ideal for getting into O ring grooves but they can leave small hairs so keep a look out for these. Once cleaned and inspected, the O ring can be fitted again and, after a final check for cleanliness, the camera can be closed.

With all of the O rings maintained you can go diving as many times as you like and, as long as you rinse the camera in fresh water after salt water immersions, you should not have any problems.



To rinse your camera, it is best to fill a bowl of fresh water and put the camera system in it and work as many controls as possible. If you haven't finished the film, you won't be able to operate the shutter release or wind on but a couple of minutes immersion should be enough time for the freshwater to get into all those small nooks and crannies in which saltwater loves to lurk. If you have finished the film, rewind it

like the anatomy and diet of the fish) was not an activity that coincided well with fish photography.

For one thing, underwater camera equipment was too costly.

"For many years I resisted taking underwater photographs of fishes because I expected Nikon or Canon to come up with an S.L.R. camera that is waterproof like the Nikonos," Randall says. "Finally, I gave up waiting and got an Ikelite housing and a Nikon F camera."

For lighting, he uses a double strobe (Vivitar 292's in housing).

"The main reason I have not gone for more expensive rigs is the cost", Randall says. "And I have been getting photographs that are acceptable, anyway. There are problems with Ikelite housings. I often have trouble. But one thing I particularly like (about them) is the clear plastic - for one can see water when it starts coming in."

Underwater photographs of fishes

prior to rinsing and you will be able to operate all the controls for a very thorough rinse.



If you do not have a basin of water, a running tap will do but don't turn it on too hard as the high water pressure just might force it's way past an O ring and into the camera.

Once rinsed, the camera can be dried externally and either stored or the film re-loaded. You will need to open the camera to reload. Doing this will disturb the O ring seals and any which are disturbed must be re-maintained as before. If any of your maintained seals are not disturbed, they do not need re-maintaining.

If you follow the above procedures and keep a detailed look out for any hairs etc which may bridge the O ring seal, you

should never have any floods. Have the inaccessible O rings serviced annually and your camera will keep performing without any hitches. As soon as your maintenance standards drop, the chance of a flood will increase dramatically so take just a couple of settled minutes to check and regrease the O rings and you will avoid disappointment. Most people who suffer floods either didn't do any proper maintenance or they rushed it.

Finally, just a word about the performance of O rings. These compressed neoprene marvels are retained in precisely machined smooth grooves and another smooth sealing surface is squeezed onto the exposed O ring surface. As the pressure increases so the O ring is pushed into its seat and actually takes on the shape of the groove.

The most dangerous time for an O ring seal is when you are in very shallow water with very little pressure on the O ring. The deeper you dive, the more the pressure pushes on the O ring and actually improves the seal the deeper you go. This poses design problems, especially where you have controls which you wish to rotate at depth. The pressure at depth may cause so much extra friction on the control shaft that it is difficult to operate. The compromise is to have tolerances which still allow a good seal

in shallow water but which don't bind up at depth.

As a final comment, always carry a spare set of all of the accessible O rings. Their cost is negligible compared to the frustration of not having a spare on the once-in-a-lifetime trip when your main O ring rolls over the side of the boat during a routine maintenance and disappears into the deep blue fathoms.

O rings are extremely hardwearing when kept supple with silicone grease and should last years. However, heat and sunlight will eventually cause them to crack and possibly let water in. For the comparatively low cost, it is best to change them annually.

Next issue, we'll look at maintaining the other O rings and will eventually show how to strip down each model of underwater camera to gain access to all of the O rings. If you are mechanically minded and reasonably capable with your hands, there's no reason why you couldn't service these O rings yourself.

Peter Rowlands

UP in Aqaba

David Nardini reports on the Royal Blue Dolphin Competition

'The intention is not to hand over an ordinary shot but a beautiful photo of a mysterious non-common world'. These were the words which led 23 international underwater photographers from 15 countries to compete in the 1st The Royal Blue Dolphin, international Underwater photo contest, held in Aqaba, Jordan.

Under the patronage of His Majesty, King Hussein, the event was organised by The Hotel Club Aquamarina, the Belgian tour-operators Marine Adventures, the Royal Jordanian Airlines, and the Flemish Underwater Commission F & F Nilos.

The Gulf of Aqaba with its clear waters is an ideal location to hold such an event, especially with the backup and diving facilities provided by the Hotel/Club Aquamarina. The actual event was to be held over 3 days, the actual competition time being the first 3 hours of the morning. Each competitor had 3 rolls of 100 ASA slide film to expose over the total 9 hours allocated. After this period each competitor was to submit a creative and a nature portfolio, each portfolio consisting of a minimum of 5 slides.

Unfortunately, with a few remarks and complaints from competitors, this time was reduced to three 2 hour slots over a one and a half day period; ie, am, pm then the following am. This new limit, 6 hours in total, was felt to be unacceptable to produce photographs of a high calibre, however, no concessions were made and the competitors just had to squeeze it all in. The delay was mainly due to the anticipated arrival of His Majesty. Neither His Majesty or Her Highness could attend, thus the change of schedule could have been avoided. To make matters worse, the film was to be taken to Amman to be processed (E6), and returned within a 6 to 10 hours. This proved to be a time delay, making competitors impatient and uncomfortable, especially since they would not be able to view the first day's work before embarking on the last day's shooting, and by this stage blown 2/3's of their chances. I personally felt that the organizers should have set up local or on site processing.

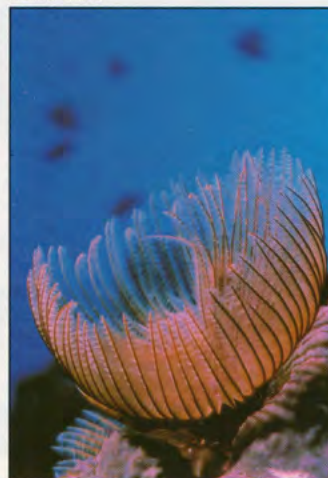
The competitors were divided into three groups, each group visiting one of the three designated sites; all locations were to be reached by minibus. The visibility was not excellent by Red Sea standards, but certainly acceptable for the majority of shots. Generally the water could best be described as having a 'milky' quality, espe-



(Above) The quality of duplicates provided by the Organisers was poor and hasn't retained the original quality of this Peter Scoones' shot



(Above) Marc Debatty from France and (Below) Wilhelm Kolvoord from the Netherlands



cially on extreme wide angle/fisheye shots. The surface of the water remained calm throughout the morning and early afternoon, with conditions becoming windier in middle to late afternoon.

The three sites consisted of the Aquarium, The Wreck and the Wall. The competitors regarded The Wreck as the best of the three, closely followed by the Aquarium, and finally the Wall.

Even though The Wreck is relatively young, it provided for all aspects of photography, from close-ups to wide-angle. The ambient lighting was best in the afternoon as it illuminated the superstructure of the vessel. The hull and most of the deck are intact, with the seabed at a maximum of 35 metres.

The Aquarium, in contrast to the wreck, was quite a picturesque location, where typical Red Sea natural history subjects were in abundance. Most subjects were in the 0 to 20 metre range, and the ambient lighting proved to be good throughout the day. The Wall, as the name implies, is just that, a vertical coral wall, making interesting varied compositions impossible. Most competitors felt this site to be the most unproductive.

There was a happy balance of Nikonos and housed equipment. Most Nikonos were fitted out with 15mm lenses or close-up attachments. The housed equipment varied from commercially available units to home made ones. The same was true for flashguns.

In the afternoon of the first day a massive exodus was arranged by the organizers, where all the competitors, models, press, and television dived The Wreck. This proved useful for some people to research the site and check out any equipment before the real runs. The dive masters at the Aquamarina informed me that 80 (yes 80!) bottles were taken that afternoon; those Bauer compressors must have been busy that evening.

Dawn broke on the first day of the event, two sessions to be done and two rolls MUST be returned to the organizers by the end of the day; that's a theoretical 72 shots in 4 hours, some shooting kids! I can imagine competitors relying on a marine animal to perform having problems with such a time constraint, unless they knew exactly where the animal was and it's temperament. Judging by the total successful nature portfolios submitted, few competitors choose this option. Some competitors

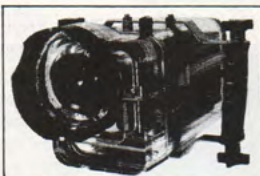
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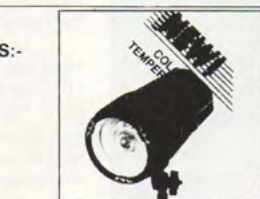
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(Above) Linda Pitkin receives her trophy and Wilhelm Kolvoord (below) from the Netherlands receives his from Ali Ghandour, President of Royal Jordanian Airlines.

(Above) A pleased Peter Scoones walked away with the prizes and trophy for the Creative category. (Below) Vincenzo Paolillo, his model, Peter Scoones and Linda Pitkin.



opted to use props, and in some cases, all 5 shots of their portfolio were basically of the same subject/theme. So much for a balanced portfolio. The feeling at the end of the first day and 2/3's of the way in was of general discontent and of being rushed. The groups were being timed the moment they walked onto the beach, as opposed to the time they entered the water; this doesn't leave much change out of 2 hours considering kitting up time and possible decompression stops for those who decided to go in search of specific deep subjects.

The next morning, the competitors were in search of the final subjects to make up their complement of 5 slides per portfolio. Many competitors were in the unfortunate position of being unhappy with the first days efforts and were relying on this last roll. The shots were taken and the rolls handed in. The relief visible on the competitors faces was quite evident. All that was left at this stage was to sit back, enjoy the sun and down a few drinks, anticipating the courier the following morning.

Seven international judges, the ma-

jority consisting of underwater photographers, selected the winning and runner up portfolios in each category by projecting the sets and allocating marks out of ten for each individual slide. The marks were then totalled up for each portfolio. If a tie situation was encountered, the two or more portfolio's in question would be compared and the one with the greatest variety, would be the winning set. Since the slides were marked individually, if a portfolio had very similar pictures, a judge pointed out to me that the resulting totalled mark could be higher than it should. Overall, however, the marking system was found to be fair, and the bias in the marking would not have occurred if the competitors submitted a true portfolio instead of a variation of a theme. Another point made by another judge, was the confusion in interpretation of 'nature' and 'creative' portfolios. Apparently very few photographers adhered to the strict definition. Perhaps a more definite definition in future events will prevent this from reoccurring.

The finalists and runner up portfolios were projected during a very pleasant dinner, closely followed by the prizes and trophies.

The event was enjoyable for competitors and all other invited guests alike. The organizers did very well considering the tight schedule. Looking forward to next years event, with a few improvements, this event should turn to be a highly regarded International Photosub.

David Nardini

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Short Ends and Competitions

Underwater Photography Festival Egypt Sept 15-20 1988

FOCUS is Egypt's first underwater photography competition to take place in Hurgada between September 15th and 20th.

There are four categories - Open slides, wide angle, macro and surface slides. The four days of competition will include 8 offshore dives and entrants will be supplied with 12 litre tanks.

Two films per day will be allocated and at the end of the competition, 4 slides must be selected, one per category. Throughout the 5 days there will be seminars given by top speakers covering underwater photography and cinematography, underwater medicine and marine biology. The guest of honour will be Eugene Clarke.

The competition is open to anyone and registration costs \$390 per person and six nights at the Sheraton Hotel on a half board basis is \$340 per person based on a double occupancy room.

For further details please contact American Express Egypt Ltd, 17 Mahmoud

Iarek El Housseiny.

Jean and Walt Deas Underwater Photography Competition : 1988

There will be a beginner's section for those who have never won a prize before a wide-angle section for those devoted to that sort of work, a macro section, and a section for general and other methods. The prizes will be altered and the Trophy will be awarded to the persons with most points in the macro, wide-angle and general sections. Though entrants will be allowed to submit up to nine slides, no more than three will be allowed for any one section.

The competition closes on 31st december this year. Entry forms may be ob-

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1988 Southfed Photographic Competition

Open to any and all members of SOUTHFED clubs, this competition comprises of - 1)Best U.K. Slide, 2)Best Overall Slide, and 3)Best Portfolio (up to 6 slides). All photographs must have been taken in 1988, with no aquarium shots allowed; however composites are allowed, but ALL elements must have been taken underwater in 1988.

Mark the slides with name, "U.K.", if applicable, and a spot in the lower left corner. Closing date for entries is November 18th, with subsequent judging at the A.G.M. on December 4th.

Cocos Islands with Ocean Voyages

California based travel company Ocean Voyages are offering trips to the Cocos Islands, 300 miles off the coast of Costa Rica. They claim that this is their greatest and most unique dive destination with superb diving for experienced divers.

There is a profusion of marine life and many sharks so for those who love the underwater world, this could be a paradise. Trips are all on board the 120 foot motor yacht Okeanos and are priced at \$1,695 per person.

Jaques Dumas Trophy of Underwater Photography

Open to all underwater photographers worldwide competitors must submit four colour photos with an exact format of 30 by 40cm, without rigid backing, and the four appropriate slides. These photos must have been taken underwater; not in an aquarium or oceanarium and must not have been already won in this Trophy (winner, or the ten selected). On the reverse side of the photos, the photographer should write - Name and first name of author, his/her complete address, location where the photo was taken, and other technical details should be indicated.

The jury will take the quality of all four photos of each competitor into consideration and not just one photo. The winner will be selected from the ten best submissions. The winner of the trophy will receive a sum the equivalent of US \$1000, in addition to the trophy itself. The ten best photographers will receive CMAS medals.

Closing date for submission is DECEMBER 31st, 1988. Send all entries to: CMAS / JACQUES DUMAS TRO-

SEA VIEW 1988 - The International Photo and Film Festival



Saturday, December 3rd 1988 is the date set for the biannual festival, SEAVIEW, which takes place in the Cultural Center of Berchem (Antwerp-Belgium). It will be a meeting of the world's best underwatercinematics and photographers, who will show their best productions on this festival. Shown will be principally never before projected films by Dr. Horace Dobbs, Mike Portelly, Les Kemp and Patrick Lagrou. Also included in the festival is an international underwater photo and slide contest that will be judged by an international committee of underwater photographers and/or cinecasts. Categories leading to prizes of divegear, trips, famous trophies and awards are: Open slides, Macro slides, Colour prints, Black and white prints, with a place for the slide of the best Belgium competitor.

Entry forms and fees must reach SEAVIEW before the 28th of October 1988.

For further information and entry

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