Photo & Videography

Edited by
Daniel Beecham
& Jason Heller

Why Shoot Video?

In the past we've focused on teaching you about underwater still photography, including (amongst other topics) equipment, locations and techniques. In the next few issues, we're going to be diversifying a little, with a series of articles about underwater video.

As with any topic, there are various degrees of understanding to underwater video. For now, we're going to be concentrating on helping you get to grips with the basics, and we'll be breaking it down into small digestible topics, which will include;

- Equipment (camera's and housings, planning a trip or shoot),
- Lighting and Colour (underwater lights, white balancing, using filters)

- Technique (diving for underwater video, camera movements)
- Post processing (Capturing, Editing, colour correction, sharing)

In this first article, we're going to look at some general video theory, including;
- Why shoot video?
- Formats
- Frame rates
- Progressive or interlaced?
- Aspect ratios

Why Shoot Video?

People have different reasons for first taking a video camera underwater. Some divers turn to video in an effort to generally rejuvenate their interests in diving. Once you have a camera in your hands, the quietest of dive sites can become a haven, you can spend an entire dive waiting to capture a certain fish species, or rare behaviour.

For others it can be out of necessity. Many resort or live-aboard dive guides shoot holiday videos for guests to supplement income. Commercial divers regularly use video camera cameras for inspection work, to show a client a progress or damage to an underwater construction.

There's also the obvious application of professional filming work for documentaries and feature films. A select few individuals specialize in high definition and large format film work, creating 'blue-chip' documentaries for broadcast and theatre release. The majority of divers however simply shoot for fun, and to share their underwater experiences. Thanks to technological advances, it's now easier than ever to successfully shoot, edit, and share your videos.

Cameras are simultaneously getting cheaper and better, and the technology surrounding underwater housings and lighting systems is also helping us to achieve consistently better results. Many computers now come with video editing software such as iMovie, which allow you to easily put together basic movies. You can also buy con-sumer version's of professional software packages such as Final Cut Pro, these provide an end to end software solution, allowing you to capture footage from your video tape, edit, and output to a variety of different formats.

Sharing your videos is now also easier than ever. With the advent of websites such as youtube, you can share your videos with friends and family, or create podcasts for people to subscribe to and regularly download. After taking all this into account, there really seems that there's never been a better time to get into underwater video.

Formats

There's a number different video formats available these days. We only really need to look at a couple, DV and HDV. Other formats

An HDV camera housing

An underwater white-balance chart

A camera housing with an underwater lighting system

Software packages such as Final Cut Pro (FCP) allow you to edit your movie, and output to a variety of different formats.

generally remain solely the territory of professional cinematographers, and are not suitable for recreational divers for a number of reasons, including the costs involved, as well as the logistical issues relating to transportation of large numbers of support equipment that professional systems demand.

DV has been a popular format for a long time now, and is still very popular today. The cameras are still available to buy, as are the housings and other support equipment, but the advent of a newer, better format has taken DV's place as the most common video format in use.

Roughly three years ago Sony released their first HDV camera. Since this time the HDV format, which was created by a consortium of manufacturers including Sony, Canon, Sharp, and JVC, has gained tremendous popularity. Many production companies and networks have adopted the format for a variety of uses. Often times, to save costs, a production may consist of a mixture of true

1920 x 1080P - HDTV

1280 x 720P HDTV

768 x 576 - PAL

720 x 480 - DV NTSC

There are numerous different video formats, here you can see a comparison between a few.

High Def material alongside HDV material, the picture quality is that good. Even though its been adopted by major industry players, don't think that HDV is for professionals only. Many different manufacturers produce HDV cameras, and there are models available for as little as $1000, which produce stunning results. More and more cameras become available, some of which even have switchable frame rates, or can be switched between progressive or interlaced modes. Both DV and HDV use the same storage medium; mini-DV videocassette tapes.

FPS, Frames per Second

The number of images that a video camera records in a second is known as the 'frame rate'. In order to trick the eye into seeing movement rather than a series of still images, a minimum number of frames per second must be seen. Old mechanical cameras used to shoot frame rates as slow as six or eight fps, but modern, professional level cameras can shoot as much as 120fps, which can be used to
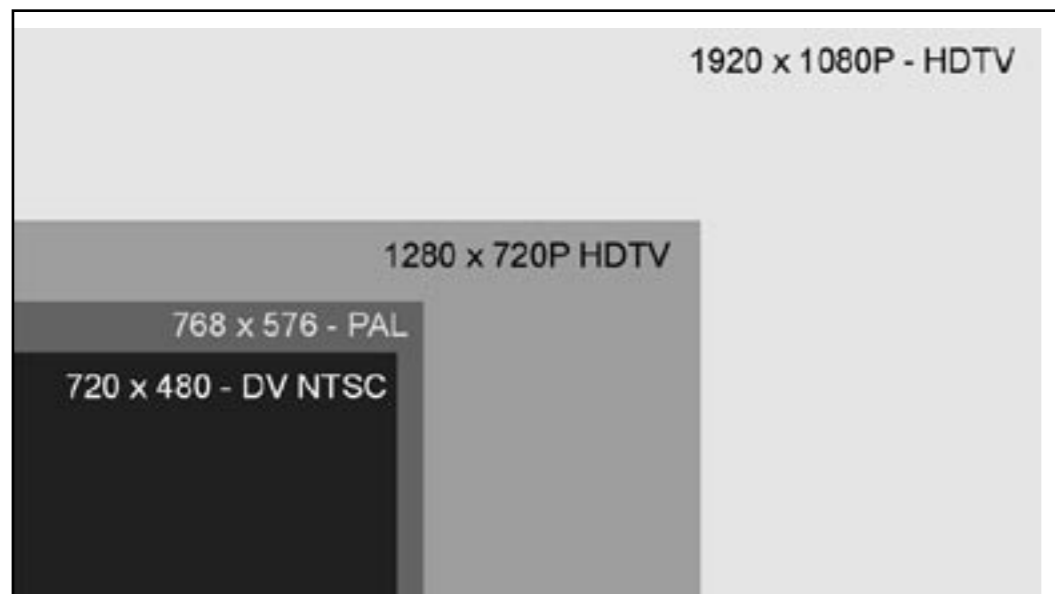
show fast action in slow motion.

Different geographical regions use different frame rates, for example Europe, Asia and Australasia use 25fps, which is known as PAL. USA, Canada, and Japan etc use NTSC; 29.97fps. Generally you'll only ever shoot the frame rate that is used in your country of residence.
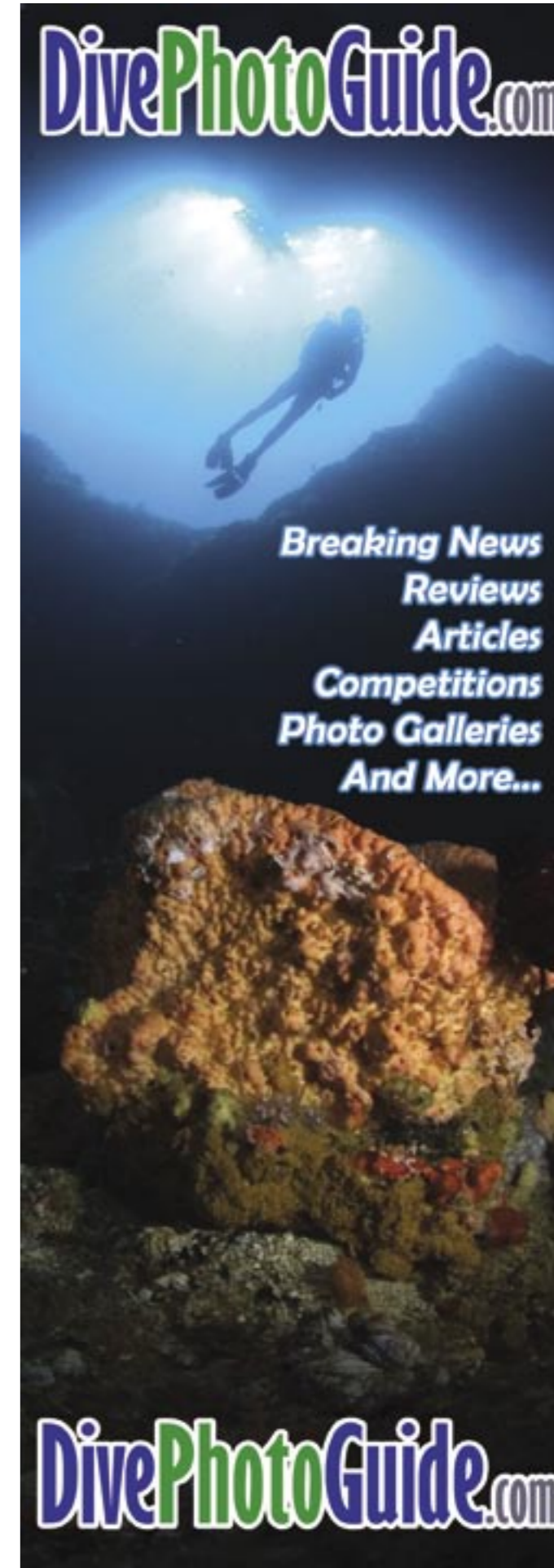
Progressive or Interlaced?

Video cameras can record in either interlaced or progressive formats. Interlacing was created as a means to provide visual quality inside the limitations of narrow bandwidth for broadcast. When material is interlaced, every frame is divided into odd and even horizontal lines, and the two are scanned separately.

Progressive, as it sounds, progressively scans each individual frame, in the same way that a film camera does. Many professional level video cameras can be set to record either progressive or interlaced. Oftentimes, people choose to shoot progressive
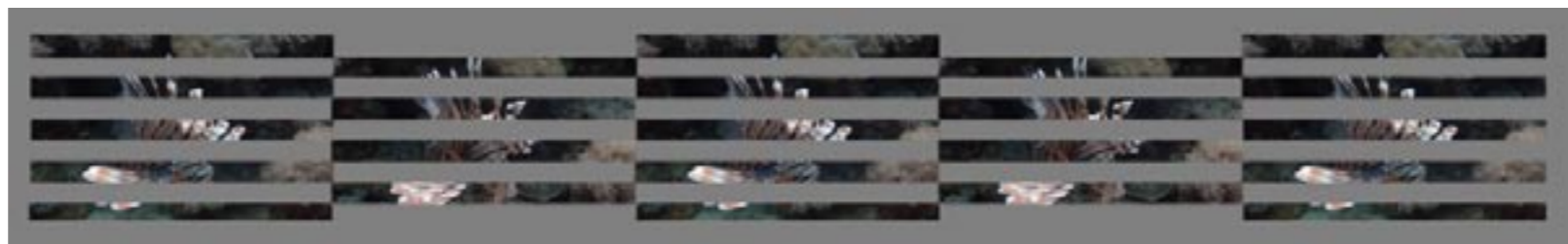
When material is interlaced, every frame is divided into odd and even horizontal lines, and the two are scanned separately. If progressive, each individual frame is scanned individually, like a film camera.

16 x 9 and 4 x 3 are both popular aspect ratios, here you can see how the two differ, and how your frame can be used in different ways to compose your subject.

ture. The most common aspect ratios are 16 x 9 and 4 x 3. Traditional television screens are 4 x 3, but new high definition and 'widescreen' displays are 16 x 9. This is the same aspect as traditional 35mm film, and so has a more cinematic look and feel. 16 x 9, as a general rule is a more popular aspect ratio these days, one reason being that the human eye view's a widescreen image more comfortably than a traditional 4 x 3 one. On a personal note, I find working in the 16 x 9 aspect ratio much more enjoyable.

It's worth bearing in mind the final use of whatever footage you're shooting, if you want to view it on your home TV system, then you'll may be best going for 16 x 9, but if you exclusively want to view it

on a personal device, such as an iPod, the screen would be 4x3, if you shoot 16x9 then you'd either need to 'letter-box' your final movie, or adjust it in some other way when you edit it.

Hopefully now some of the jargon behind video cameras is a little clearer. In the next issue we'll be looking closely at what cameras are available on the market today, what their advantages and disadvantages are. We'll also look at some different types of housings, and what other equipment considerations you should undertake before you decide to get wet!

as it gives a more filmic, cinematic look, as well as ensuring the maximum compatibility with old film stock. The ability to switch cameras inbetween interlaced and progressive formats is now filtering down into smaller, consumer level cameras.

Video format abbreviations often include an 'i' or 'p' to indicate interlaced or progressive recording; 50i, 60i, 24p etc.

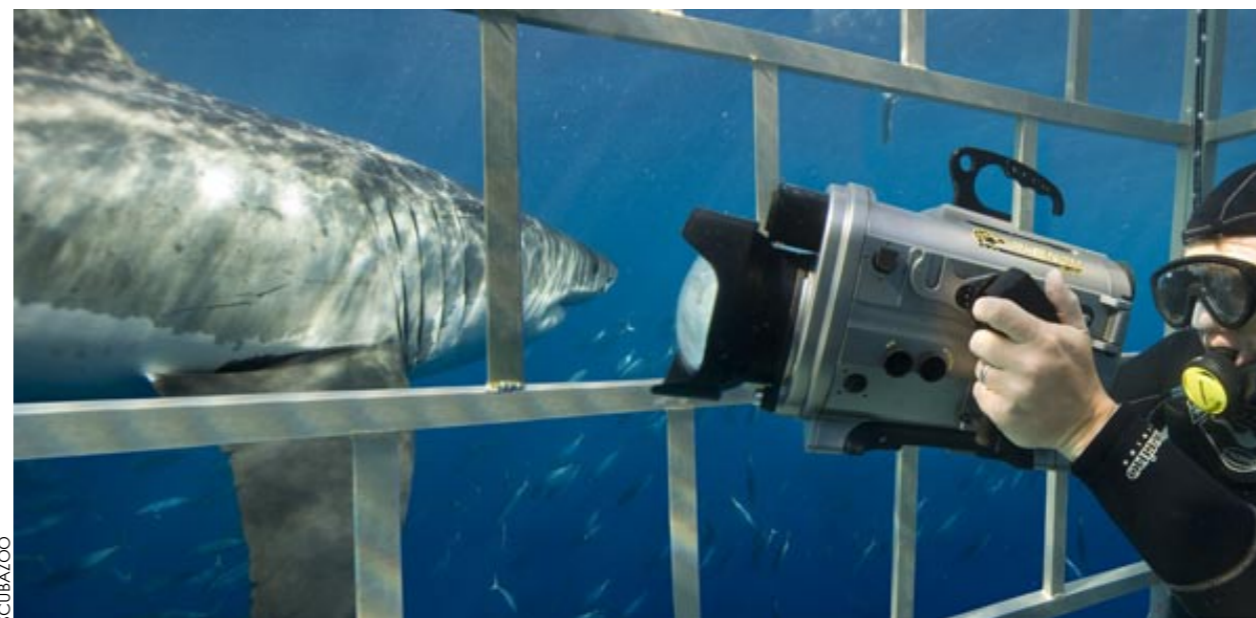For some applications, including underwater and wildlife video work, interlaced formats can be more popular. Fast moving subjects, like the subjects we often encounter underwater are preserved better when using an interlaced format, but ultimately what you shoot is down to personal preference.

It's important to look into the various frame rates and formats before you make decisions on purchasing equipment, make sure that the camera you're looking at shoot's the right format for the kind of work you plan to do.

Aspect Ratio's;
The term aspect ratio is used to describe the width and height of your video pic-

Scubazoo at work (see article in previouls issue) with a digital video

SCUBAZOO

cinema of dreams

Under the Blue 2007

International Underwater Photo & Video Competition

Over $20,000 in Prizes!

Next in the series of Underwater-Competition.com underwater photo & video competitions, and on the heels of the popular Our World Underwater & DEEP Indonesia competitions, popular underwater imagery websites Wetpixel and DivePhotoGuide have teamed up with the 2007 SCUBA Show to develop a competition for amateurs and hobbyists entitled "UNDER THE BLUE". Winners will be announced online and exhibited at the 2007 SCUBA Show in Long Beach, California, June 2nd – 3rd. **Deadline May 12, 2007.**

Photographers will compete in four still image categories, including a category for images that focus on California's unique and beautiful underwater environment, and one video category. Winners will share in more than $20,000 in prizes, including premium dive travel, and underwater photo & video equipment! Travel prizes include trips to some of the top photo destinations in the world including Fiji, Indonesia, Papua New Guinea, South Africa and Australia. 15% of entry proceeds will be donated to marine conservation efforts.

2007 CATEGORIES
1. Majesty of the Oceans
2. The Macro World
3. Man & the Sea
4. California Underwater
5. Video

www.UnderwaterCompetition.com

Sealux ultrawide for Sony HC1

The new fisheye port for Sealux' HD1 Housing for Sony's HC1 boast a 145° shooting angle and permits for a 6x zoom. It weighs in at 1500 gram, is rated at 90m and comes with a 2 year warranty.

www.sealux.de

WM 3.6 Colour monitor. The high-resolution Colour TFT-LCD monitor offers a sharp picture of 3.6" in 16:9 format that is rich in contrast. The housing is made from aluminium, hard anodised and specially coated for highest seawater resistance. Brightness: 250 cd/m² Contrast: 350:1 Video Input: PAL or NTSC Operation time: 4 hours Testing depth: 90 m. Guarantee: 2 years

www.sealux.de

Canon Releases the EOS-1d Mark III Digital SLR

EOS-1D Mark III is the world's fastest digital SLR camera. At 10 frames per second, the 10.1 megapixel EOS-1D Mark III digital SLR can fire huge motor-driven bursts of 110 Large JPEGs or 30 RAW files. The all-new 10.1 megapixel, APS-H size CMOS sensor which is designed and manufactured by Canon, is the most light-sensitive and innovative sensor that Canon has developed to date. A new microlens array and a more efficient pixel structure for ultra-low noise, resulting in exceptional image quality and an amazing ISO range of 100 to 3200 with extensions to ISO 50 and a highly usable ISO 6400

Light & Motion has announced the Bluefin HC7, an underwater housing for the compact Sony HDR-HC7 HDV camcorder. The Bluefin HC7 will allow manipulation of the camcorder's touch screen menu to provide access to one-touch manual white balance, independent aperture and shutter speed control (a great feature of the HC7 camcorder), Tele Macro mode, and Smooth Slow Motion. Also standard on the Bluefin HC7 is Light & Motion's signature Smart Grip Handles, an underwater microphone, flip-down color correction filter, and an all glass zoom through lens. Pricing has not yet been announced, but will likely be $3,099 USD.

VIA WETPIXEL.COM

www.uwimaging.com

FD-40X Housing will be _Available Soon_

Fantasea must be the first with a housing for the new Nikon D-40 and D-40X Cameras. Housings come with standard 18-55mm Zoom Port included. Fully functional, allowing access to all essential control options. Depth rated to 60m/200 feet. The Housing includes a one-year free D.E.P.P flood insurance policy.
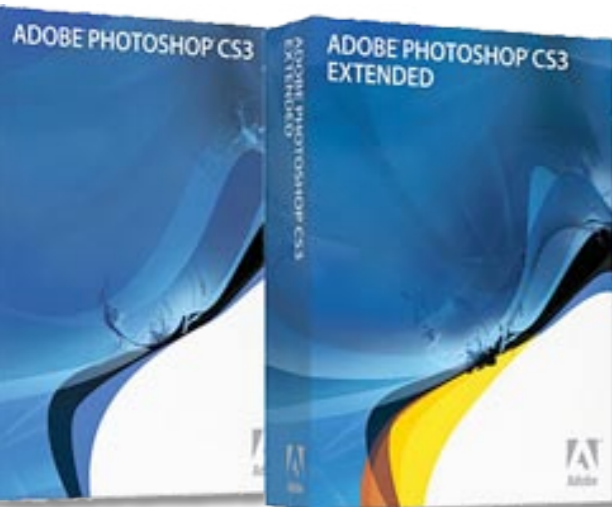**www.fantasea.com**

Photoshop CS3 is out

Adobe announced Adobe Photoshop CS3 and Photoshop CS3 Extended, two editions of the professional industry standard for digital imaging. Photoshop CS3 software is a major upgrade, offering new innovations in editing power and productivity for designers and photographers.
www.adobe.com

GEOCEAN GRAPHIC
Almanac of Our Seas

SEACAM

Call for entries

ADEX Photographer Of The Year Competition 2007

How to Enter & Regulations

1. The ADEX PHOTOGRAPHER OF THE YEAR COMPETITION is owned by Suntec Integrated Media and managed by the Ocean Geographic team. The contest is open to all participants worldwide.

The categories for the ADEX Photographer of the Year Competition are Seascapes, Macro and Animal Behaviour. The final round of the competition will be judged "live" at ADEX 2007, where the judges, made up of distinguished underwater photographers, will give their scores and critiques. There will also be a Q&A session for participants to learn the finer points of successful underwater photography. For the top honour of "ADEX Photographer of The Year" the audience will cast their votes on the finalists selected from the three categories. Winners of any of the three categories stand a chance to win a SEACAM Nikon DSLR housing!

15. Entry fees:
One category is AUD $10
Two categories is AUD $15
Three categories is AUD $18

2. Participants must first register to compete with the competition application form (download) and submitted to APOYC@underwaterartists.com; deadline for registration is 18 April 2997 – 1600 hrs GMT +.

3. We will acknowledge your application via email within 24 hours, and we will advise you of your Competitor ID / entry number. We will also forward instructions on how to submit your images.

4. Submission by email only; Images must reach us by email: 20 April 2007 - 1600 hrs GMT +7. We recommend you send registrations as soon as possible.

5. Images must have been taken in the wild, underwater, with a digital camera. Aquarium photos will not be judged. Over-under shots are permitted, but digital composites / montage are not.

6. Images may not have been winners in any competitions.

7. The categories for submission are Seascapes, Macro and Animal Behaviour. You may present up to three images in each category.

Definition of categories:

Seascapes (WA):
Any image taken with a wide-angle lens showing reefs scenery with or without animals as main subject. Model permitted.

Macro (MA):
Any image taken with a macro lens showing part of or entire a subject that is smaller than 20cm (8").

Animal Behaviour (AB)
Any image showing natural behavoir of marine animals.

8. The final round will be judged 'live' during ADEX 2007 – 28 and 29th April 2007; sessions time to be announce on site. Two sessions with live audience and live video broadcast over show floor.

9. Participants will be invited to attend the judging sessions.

10. Subject to space availability, all entries will be presented on the show floor but only the finalists will be presented for the final 'live' round judging during ADEX 2007. Though the juries will present their scores, critiques and summary of their competition.

11. Competitors agree to reproduction of their pictures for the ADEX PHOTOGRAPHER OF THE YEAR COMPETITION archives.

12. Competitors agree to the use of their works by the ADEX for the promotion of future competitions. Winning images may be shown to the public at future event. At each use of the works the name of the author will be mentioned but no payment for use of the copyright or no retribution of any kind will be possible. No commercial use of the image will be made by the organizers of the competition. Individuals wishing to purchase any of the works will be put in contact with the photographers.

13. The Ocean Geographic Organizing Committee will consider that, according to law, all works presented are free and clear of copyright and that the images are the exclusive property of the authors. By their participation in the competition, the authors undertake to guarantee the organizers against any claims that might be made against them. Ocean Geographic may in no way whatsoever be held responsible in cases of dispute or litigation.

14. The decisions of the jury are final. Participation in this contest entails acceptance of the above regulations.