



Edited by
Gunild Symes

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POINT & CLICK
ON BOLD LINKS



Cool Fall Duds & Doodads for Divers

Dive Fashion

All photos courtesy of the
manufacturers



Barefooting

Discover the exhilarating joy of going barefoot without leaving yourself naked with Vibram FiveFingers, an entirely new kind of footwear that offers the protection of a second Vibram skin and gives the feeling of gently separating each toe while stimulating and exercising the foot muscles with every step. Comes in black and black/gray/orange combination. Price: US\$70.00. www.vibramfivefingers.com



Maneater spaghetti strap tank for women from Amphibious Outfitters doesn't mince words when it comes to diet preference. Price: US\$17.95 plus shipping and handling. Check out their new tint on tint designs for both men and women at www.aoshirts.com



Dive Diva GirlDiver is promoting the scuba lifestyle for female divers all over the world. Dive Diva shirt: \$24.95. Clothing, accessories and informative articles available at www.girldiver.com



Kids Only World

Surfing dolphins tie dye children's short sleeve t-shirt. 100% preshrunk heavy weight cotton. Youth shirt has front artwork only. Price: US\$11.95 kidsonlyworld.com



Super Slimming

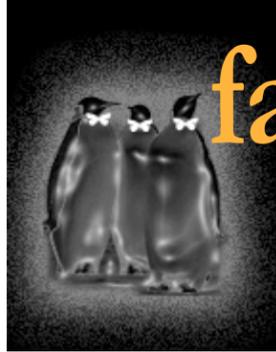
suit by Carol Wior®. Designed with black and white slash insets at the sides help create your slimmest dive bod ever! Soft-cup bra and wide straps that crisscross at the back give maximum lift and support. Nylon/spandex. Misses Price: US\$59.99. Sale: \$44.99. metrostyle.com



Got Gas GirlDiver does not neglect the gents. With this Got Gas t-shirt for men, techies can leave 'em wondering... \$24.95 at girldiver.com



fashion

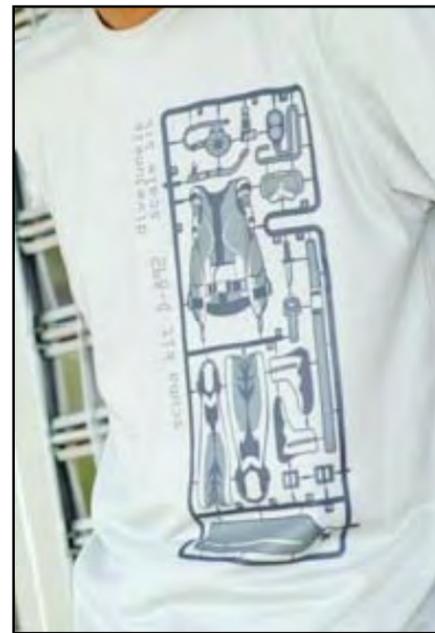


Stylin' Dive Threads



Seventenths New Divin' Styles

Vintage Scuba '43 (above) Women's Skinnyfit Tee has Retro tropicana banana-republic style celebrating the arguable birth-year of Scuba, 100% cotton with vintage distressed print for that authentic worn-in look. Price: €29.95. Men's tee (left) with Invaders character goes techie style in a silver-grey reflective print on matt black or battleship-grey on misty green. Heavy-weight T-shirt, 100% ringspun cotton with taped seams. Price: €29.25 www.seventenths.com



Sharks!
Kids Only World has some tees with a bite to them. Break-through Shark (left) childrens 100% cotton short sleeve hand dye t-shirt and Great White Shark with mouth open wide (right) childrens 100% cotton short sleeve hand dye t-shirt. Price: US\$12.95 each. kidsonlyworld.com



Fourth Element

Top quality, style and elegance in casual apparel for divers. Manta tee (left) for men in cocoa. Price: £19.95. Manta 3/4 Sleeve for women (inset) in white and ocean blue. Price: £19.95. HMS Vest for women (top right) in black and white stripes. Price: £17.95. Ionian hooded long-sleeve tee in vintage pink (right inset) for women. Price: £39.00. www.fourthelement.com



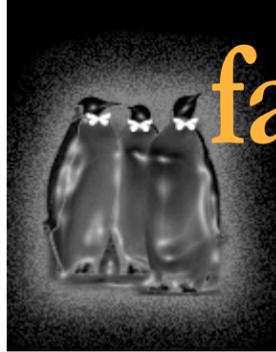
New Dive Junkie Tees

Ladies tube top, 95% cotton, 5% spandex, comes in green and gray with logo, one size fits all. The Scuba Kit t-shirt (right) is inspired by those favorite assembly-only kids' toys. Comes in pebble gray and island green. The Surface Interval t-shirt (bottom right) comes in white. Both tees are 100% fully combed cotton, Lycra-ribbed collar, 200 gsm pre-shrunk fabric, re-inforced stitching at shoulders and seams. divejunkie.com.sg



Water Girl from Patagonia

Long-Sleeved Dolphins In Motion in aubergine and Bubbler in beach glass are soft, organic cotton tees with original artwork, generous crew neck, contoured silhouette, and gently tapered sleeves for a non-binding, feminine fit. Perfect for beach-coming after a dive. Price: US\$28.00 each. www.watgirlusa.com



fashion

*Jackets for
the boat ride
& the beach*



Fleecy Things Fourth Element's Fleece pull-over for men in charcoal (above) and Icelandic Fleece jacket with zip-up front for women (left) keeps divers toasty warm after a dive into the deep. Price: £64.00 fourthelement.com



Tiki 3mm Apollo Wetsuit Shoe This high performance reef shoe features holes for water drainage, glued and blinstitched for durability and warmth, adjustable ankle strap for comfort and fit, flexible rubber sole increased responsiveness. Price: £23.00 www.tikisurf.co.uk



Water Girl Whirlwind Jacket Get out of the teeth-chattering cold sea and into the welcoming warmth of a fleecy hood that heats your soggy head and feels soft against chilled cheeks, while the feminine fit hugs your core. Beach Glass/Bluegrass, Alpaca Brown/Boulder Brown, Hot Ember/Chili, Natural/and Beach Wood. Price: US\$88.00 watergirlusa.com



Gul Newport Jacket for men. New GCX2 EVO fabric, minimum weight, breathable, waterproof, wind-proof, heat taped seams, mesh lining, lightweight performance and comfort, high visibility fluorescent hood with 3-way adjustment stows in high coastal collar with Quick-Dry lining, high visibility Gul prismatic reflective strips on shoulder and cuff, lifejacket loops, secure communications inner chest pocket, inner storm cuff for near dry seal, Quick-Dry hand warmer pockets, Self-draining cargo pockets. Eclipse/ Navy, Flame Red, Steel. Gul.com



Monsoon Jacket Don't let a little rain or a few sea swells dampen your diving day. This jacket from Isis offers the best performance-driven protection for active women in a lightweight, waterproof, breathable and highly packable rain jacket with athletic styling enhanced by reflective piping so you will stay cool, dry and visible when the weather turns for the worse. Comes in honeydew, shark, sangria, wave. Price: US\$120.00 www.isisforwomen.com



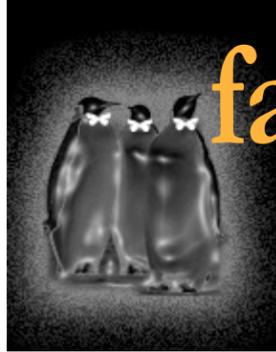
L.L. Bean's Stowaway Rainwear, Parka for women, guaranteed waterproof and breathable rugged Gore-Tex rainwear, will to keep you dry in extreme wet weather or rough seas on the dive boat. It's lightweight and packable (stows in its own pocket), knee length for increased coverage when seated. Aegean Blue, Alpine Gold (shown), Carbon, Colonial Red, Green Tea, Plum Grape, Trillium Red, Ultramarine and Vapor Gray. Price: US\$169.00 LLBean.com



The Windy Seas are expert at whisking heat away from your core. Patagonia Puff Bowl Jacket is an insulated, freeriding jacket for full-on storm protection. Combats cold with 2-layer waterproof/breathable shell with lightweight, supple Thermolite® insulation. A lining of stretch taffeta glides easily over layers, exterior fabric's durable dobby weave resists abrasion and sharp edges, removable hood is helmet-compatible and two-way adjustable, chest and left bicep pocket have zipper closures. Men's sizes available in orange jolt, alpaca brown, black, hot ember, deep blue and women's sizes in batik blue, black, elderberry and starfruit. Price: US\$279.00. Patagonia.com

New Purist Jacket for men by Patagonia is lightweight, compressible and made from R3® fleece, a mix of long fibers to provide more loft with less bulk, and shorter, dense fibers to improve insulation and wind-resistance. Supersoft R1® lines collar, cuffs and hem for skin comfort and moisture-wicking. A Supplex® nylon chin flap protects neck from heat-stealing wind. Price: US\$130.00 Patagonia.com





fashion

*Drybase for
Drysuit Diving*

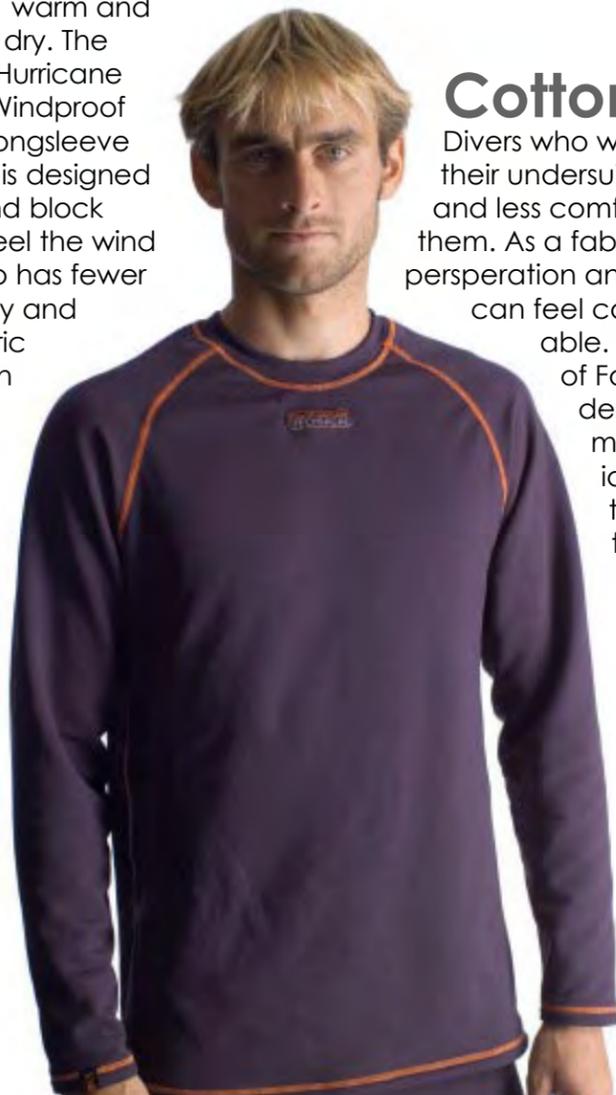
Patagonia Capilene® 4 Wrap Neck Top & Bottoms for women are each a low-bulk but highly insulative performance base layer for activities in cool to very cold conditions. Can also be worn as outerwear. Capilene 4 is the warmest of the moisture-wicking Capilene fabrics, which are the best option for high-sweat activities and wet conditions. It features an inside-facing grid pattern that disperses moisture, aids in compressibility, dries fast and retains warmth in cold conditions. Made from 50% recycled-fiber polyester from the Common Threads Recycling Program, with Gladiodor™ natural odor control. Sleek feminine fit. Colours:

Ocean Blue Heather, Beach Glass Heather (shown), Black, Elderberry Heather, Petal Pink. Price: US\$75.00. Bottoms come in Ocean Blue Heather and Black. Price: US\$65.00
www.patagonia.com



Helly Hansen base layers keep you warm and dry. The Hurricane Windproof Longsleeve

Shirt (left) cuts through the wind. It is designed to hold heat where you need it and block wind from the front so you never feel the wind through your clothes. Seamless Top has fewer seams for less friction, more mobility and lower weight. Built with HH Dry fabric that keeps you warm and dry even during high intensity activities that require maximum transport of extensive moisture. With LIFA® stay dry technology™, HH DRY acts like a second skin, which wicks moisture away from the body and to the next layer, so you can stay comfortable and active longer. hellyhansen.com



Cotton Doesn't Wick

Divers who wear cotton t-shirts underneath their undersuits may actually feel colder and less comfortable than diving without them. As a fabric, cotton absorbs and holds perspiration and moisture next to the skin. It can feel cold, clammy and uncomfortable. The new high wicking features of Fourth Element's Drybase underwear system for drysuit diving make these garments an ideal alternative to cotton underwear and t-shirts. With Drybase, skin keeps dry and divers are much more comfortable during and after a dive. Drybase Longsleeve Men's Top (left) Priced £37.95 and Drybase Women's Vest (right) Priced £33.95 fourthelement.com



Patagonia Wool 4 Base Layer Crew for men is Super warm, 100% chlorine-free wool pull-over baselayer for active use on cold to very cold days or as outerwear. Price: US\$115.00

Patagonia.com

Men's Wool 3 Crew A soft, medium-weight, 100% chlorine-free wool crew base layer for endurance activities in moderate to cold temperatures. Price: US\$92.00
Patagonia.com

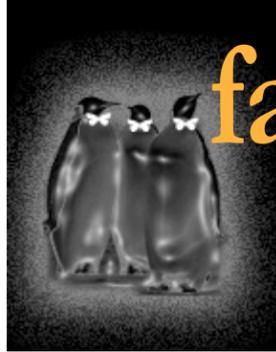


Capilene® 3 Henley for men is a smooth, high-performance first or second layer great for activities in a wide range of temperatures. Side seams and the single-piece

shoulder yoke merge safely out of the way of pack or straps to prevent chafing. Made of 64% recycled (and 100% recyclable) polyester from the Common Threads Recycling Program, with Gladiodor™ natural odor control. With a smooth exterior, easy layering, sleek fit, improved performance. Colours: Stainless Heather/Whale Blue, Boulder Brown Heather/Alpaca Brown (shown), Black and Classic Navy. Price: US\$50.00. Men's

Capilene® 4 Bottoms (top right) are a highly insulative but low-bulk performance base layer ideal for active legs in very cold conditions comes in Black and Black Heather. Price: US\$65.00
Patagonia.com





fashion

Dive Watches



Citizen Men's 200 Meter

Professional Diver Titanium Watch AT0100-51A has quartz movement, Eco-Drive—no battery changes needed, 60 minute chronograph, low charge and time reset advisory, luminous hands and hour markers, date display, 150 day power reserve, ratcheting titanium bezel, screw-down crown, screw-in caseback, titanium band, safety-fold-over-clasp-with-push-button. PRICE \$188.89 www.amazon.com

Invicta Men's Russian Diver

Watch 2625 replica of an original 1959 Soviet diving watch is water-resistant to 100m/330 ft. Genuine leather band, polished stainless-steel bezel and case, buckle clasp, mineral crystal, mechanical-hand-wind movement, luminous hands and markers, oversized screw-in crown with a protective cap, spare black dial background, Arabic numerals in neo-modern font, CCCP markings. PRICE: US\$575.00 www.amazon.com



Citizen Men's 300m Eco-Drive

Professional Diver Titanium Watch BJ8040-01E has reinforced urethane band with extendor for drysuits, salt corrosion resistant hypo-allergenic titanium case, buckle clasp, scratch resistant 6mm curved mineral crystal, analog-quartz movement. Water-resistant to 300m/990 ft. Mixed gas diving, ratcheted elapsed-time titanium bezel, helium gas release, extra large luminous hands and dial markers, date function, powered by light, 180-day power reserve, recharged in 1.5 hours. PRICE: US\$279.00 www.amazon.com



Omega Men's Seamaster

300M Watch #2561.80 from the James Bond collection has stainless-steel band and case material with brushed/polished rhodium-plated finish, blue dial with anitreflective scratch resistant domed sapphire crystal window, analog-quartz movement, luminous hands and dial markers, date display, screw-in caseback, screw-locked crown. Water-resistant to 300m/1000 ft. Helium escape valve allows helium to escape at high pressures. Calculate dive time with aluminum unidirectional bezel engraved with graduated scale. Price: \$1,089.00 www.amazon.com



St Moritz NEREOS

Dive planning and timing made easy! Time, day and date, with alarm and 1/100th second chronograph, precision depth gauge, automatic bottom timer, water temperature monitor, programmable depth alarm, programmable bottom time alarm, ascent rate alarm, dive log for easy recall of all data from last four dives. PRICE: US\$299.85 www.amazon.com



Omega Men's Seamaster 300M

Watch # 2594.52 with stainless-steel band, bezel and case, black dial, scratch resistant anitreflective-sapphire crystal window, luminous silver Dauphine hands and thick baton dial markers, 42-hour power reserve, screw-in caseback, screw-locked crown, self-winding-automatic movement. Calculate dive time. Water-resistant to 300m/1000 feet. Highly accurate. Powerful chronograph offers 12-hour, 30 minute and 1/10 second subdials. PRICE: US\$2765.00 www.amazon.com



Citizen Women's 300 Meter

Eco-Drive Professional Diver analog watch never needs a battery, uses Citizen Eco-Drive technology: harnesses the power of light-from any natural or artificial light source, converts it into energy stored in an Eco-Drive energy cell. Recharges continuously. Water resistant to 300m. Mineral glass crystal. Stainless steel case. Rubber strap. Buckle clasp. Grey dial. Screw-back case and screw down crown. Date. Luminous hands and markers. PRICE \$209.00 www.amazon.com



Seiko Men's 'Black Monster'

21-jewel automatic movement watch with analog day and date display, luminous/white hands and markers, white numbers and small markers, stainless steel band, crown, caseback and bezel with black numbers and markers, hardlex crystal, winds itself with the motion of your wrist, so it never needs a change of battery. elapsed time. Designed for diving: water-tested to 200m/660ft. It meets ISO standards and is suitable for scuba diving. PRICE: \$153.00 www.amazon.com



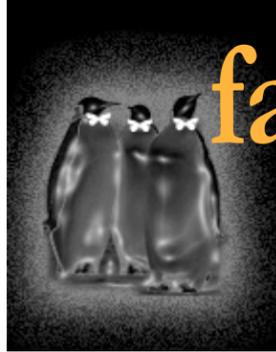
Luminox Navy SEAL Dive Watch 3900 Series II

Developed for the Navy SEAL's, meets military specifications of all branches of the US Armed Forces, fiberglass reinforced polyester injection molded case, stainless steel plate case back secured with stainless steel screws, double gasket crown/stem confers water resistance of 20atm/200m/660ft, unidirectional ratcheting bezel features bright traser "dot" encased in aluminum housing protected by sapphire glass window, tempered scratch resistant mineral glass crystal, multi-jewel Swiss quartz movement with date function, end of life (EOL) feature and four year battery life, new signature nylon/velcro pullback strap with navy SEAL and Luminox logos, new bezel format and new bold font military numeral dial design, choice of black, blue, yellow, khaki and forest green dial. PRICE: \$194.95 www.amazon.com

Luminox Navy Seal Women's Watch with Rubber Band

Finally one for the women! A smaller version of the original Navy Seal Watch, this Ladies (3/4) Size Navy Seal Dive Watch was designed in conjunction with and supplied to the US Navy SEAL Dive teams. Rigorous Military testing earned it official qualification for use in the US Army and US Navy as well as all branches of the armed Military services. PRICE: \$194.95 www.amazon.com





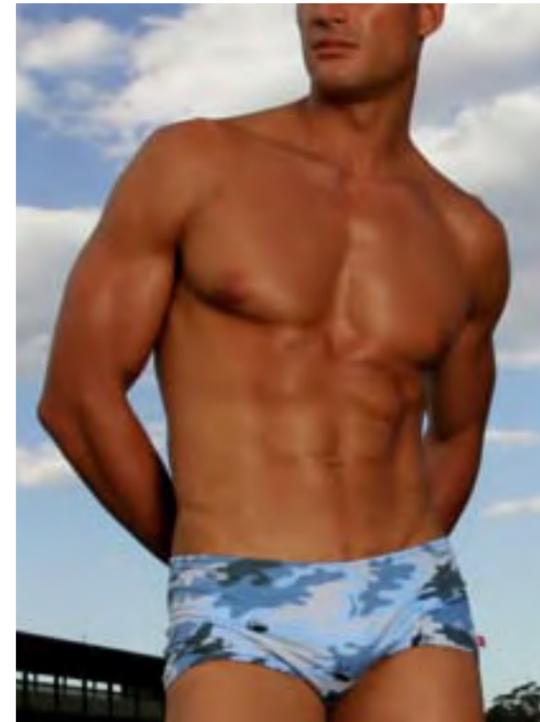
fashion

Swimwear from the East & West



ZOGGS

An Aussie original is now 'swimming all around the world'. Zoggs staff cares deeply and passionately about what designing highly innovative, quality swimming equipment and swimwear. Flinders Racer and Hip Racer Marine Performance CR25™ 47% PBT/53% Polyester. www.zoggs.com



Dolphin Racers & Jammers for Men

'Cosmos' & 'Shatter' www.dolphinswimwear.com



Speedo▶

Get inspired by top athletes in water-sports at Speedo. Check out their gallery of smart looking swimwear, for both women and men, made from high performance fabrics that live up to the challenge of serial immersions and exposure to the elements as well as repeated exposure to chlorine in the pool.

www.speedousa.com



Bondi Bathers▶

Chloe geometric print swimsuit for women. Model 1119. Price: US\$112



◀aussieBum

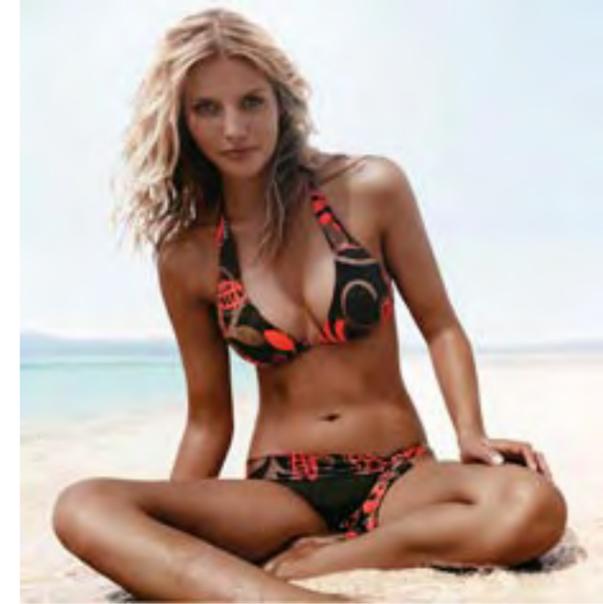
aussieBum was conceived on the shores of Bondi Beach in Sydney Australia. Simply 'living the dream' is their motto, to be independent and present gear in a way that gets noticed. Known in Australia as the 'Spinal Tap' of men's swimwear, aussieBums say, "If you doubt yourself, wear something else." Prepare for battle with Scuba Commando: Alpha, Charlie, Bravo (top left) made from 72% Nylon & 28% Lycra, features a unique scuba diving military print. Retro Bones surf shorts (bottom left) are perfect for those that dare to bare all with a tough skull design on side panels. aussiebum.com



◀Dolphin

Dolphin founder, John Hoff, was sitting by a pool one day fifty years ago, and overheard lifeguards talking how they were missed being able to buy their favorite racing briefs from Australia. Being the innovative entrepreneur that he is, Hoff realized that the same nylon tricot fabric he used to manufacture women's lingerie could be used to make these treasured guard suits. The next weekend, Hoff outfitted all of the lifeguards and launched his new swimwear business called Dolphin. Today, Dolphin outfits dozens of NCAA team champions, numerous state champions and even some world record holders. Sizes 22-40. 80% Nylon/20% Spandex, fully lined.

dolphinswimwear.com



Seafolly Swimwear

A beautiful new line of swimwear for women from the land down under. Check out the new models coming soon in their online gallery at: seafolly.com.au



Coloured Water

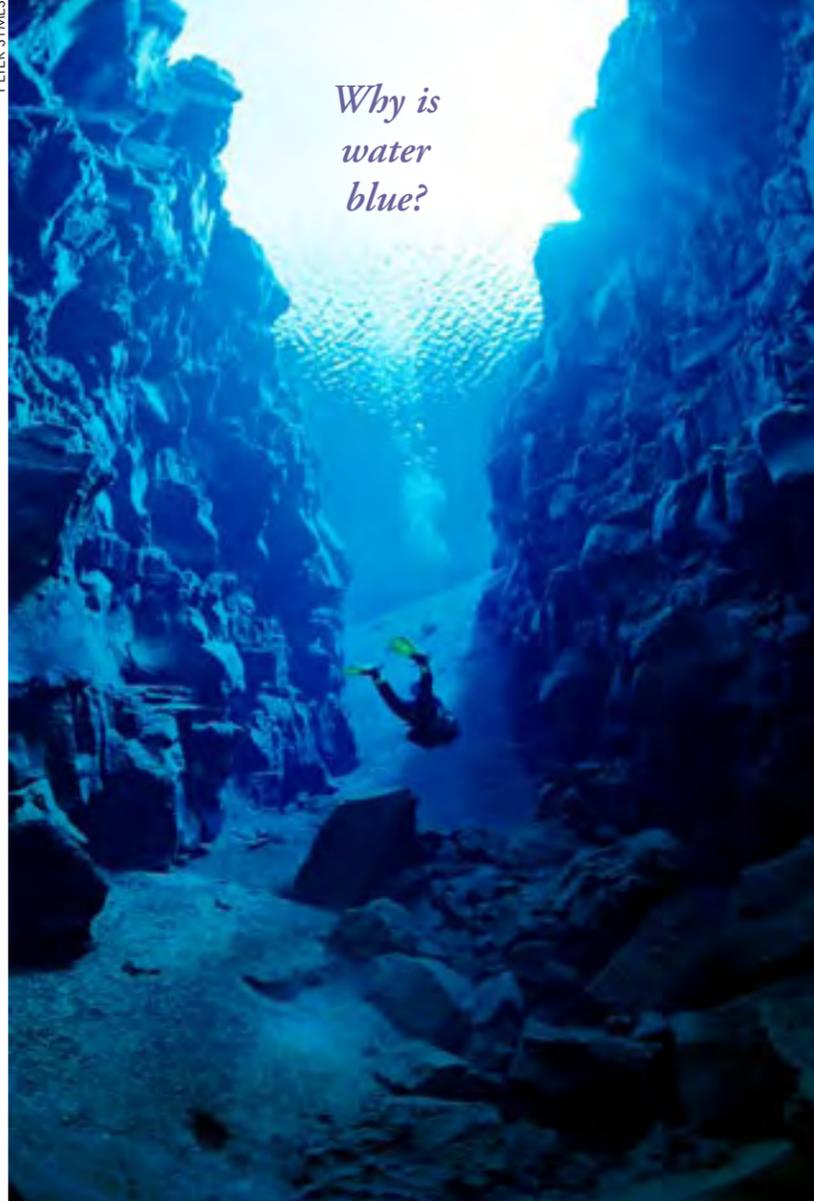
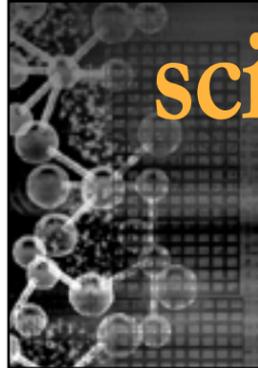
Text by Michael Symes
Photos by Peter Symes

No! I am not talking about American beer but about ordinary clean water, water that should come out of your tap.

From the air, shallow coastal sea-waters above white sands often appear to be blue or green, most of this colouring being due to either reflection from the sky or from organic growths such as chlorophyll-containing algae. A glass of tap water, on the other hand, seems to be colourless, yet divers know that water has a definite blue tinge below the surface.

Water is, in fact, blue in colour, albeit a very pale blue.





Why is water blue?

Thingvellir, Iceland

We can illustrate this with the example of water. The absorption coefficient of water at 700 nm is 0.006 cm^{-1} i.e. 0.6 % is absorbed per cm. This means that for a glass of water in which the thickness of the water is 6 cm, the intensity of the transmitted light of wavelength 700 nm will be 96.5 % of the initial intensity, with just 3.5 % of it being absorbed. This small change in the composition of the light is hardly observable.

On the other hand, however, with a thickness of 5 meters of water the transmitted light of 700 nm wavelength will only have an intensity of 4.98 % of that of the incident light i.e. 95.02 % of it will have been absorbed. Removal of so much red light will give the water a distinctive blue tinge.

How Do These Absorptions Arise In Water?

A free water molecule has three basic vibrations. These are:

- (I) The symmetrical stretch, ν_1
This has a vibrational frequency of $1.05 \times 10^{14} \text{ sec}^{-1}$
- (II) The symmetrical bend, ν_2
This has a vibrational frequency of $0.48 \times 10^{14} \text{ sec}^{-1}$
- (III) The antisymmetrical bend, ν_3
This has a vibrational frequency of $1.14 \times 10^{14} \text{ sec}^{-1}$

The mean H-O bond-length in the water molecule is 0.096 nm.

Harmonic overtones

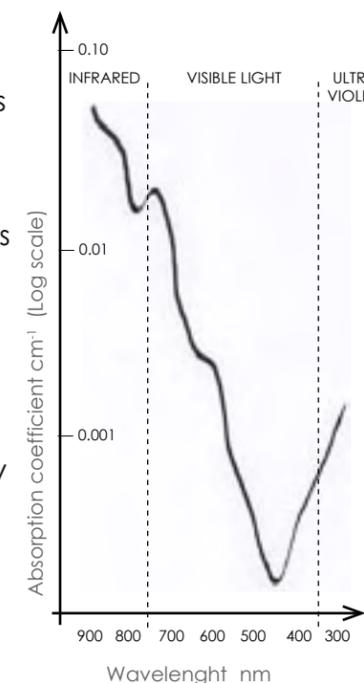
From the table above it will be seen that these frequencies lie well below those of the visible range. However, there can be both overtones, or harmonics, and also combination tones, of these frequencies, given by $(a\nu_1 + b\nu_2 + c\nu_3)$, where a,b,c are integers not all = 0. For example, $2\nu_1$ will be an absorbable harmonic, giving an absorption at 1428 nm, which is still in the infra-red region. For such vibrations to lie within the visible range there would have to be very high harmonics such as $\nu_1 + 4\nu_3$, which would give an absorption at 534 nm, a green wavelength. At any one time, however, there will be only a relatively few molecules with these complex resonances. These will therefore be too weak to be detectable.



The influence of hydrogen-bonding

We have previously had occasion to refer to the effect of hydrogen-bonding on the properties of water. Here, hydrogen-bonding causes a stronger bonding in the molecules of water which, because strong bonds resonate at higher frequencies than weaker bonds, raises the frequency of the vibrations. The resulting absorption spectrum is quite complex, with many bands in the infra-red but now also with some weak absorption bands reaching into the red end of the spectrum. It is these weak bands which cause the water to appear slightly blue.

The plot shows the absorption coefficient of water as a function of wavelength.



Hydrogen-bonding in ice is similar in magnitude to that in liquid water. Ice has therefore also a pale blue colour, which it is easily discernible in the solid ice of glaciers and icebergs.

It might be thought that some other hydrogen-containing liquids besides water would possess traces of a bluish colour because of similar absorption patterns. However, water and ice are the only two chemical substances that we normally have the opportunity to observe in pure form in sufficiently large bulk so that such a weak coloration becomes detectable. ■

This colour arises from very weak absorptions at the yellow-red end of the electromagnetic spectrum. The visible part of this spectrum stretches from the UV region, starting at a wavelength of about 380 nm, to the start of the infra-red region, at about 770 nm. These are the wavelengths that can stimulate the retinal cells of the eye and which give rise to the perception of colour. Each wavelength has, of course, a corresponding frequency. For visible light these frequencies are given in the table.

Colour	Wavelength nm (10^{-9}m)	Frequency 10^{14}sec^{-1}
Start of Infra Red	770	3.89
Red	700	4.28
Yellow	600	5.00
Green	500	6.00
Blue	400	7.50
Start of Ultra Violet	380	7.89

Molecular Vibrations

Now, absorptions occur when a molecule can vibrate in harmony with the radiation falling on it. Thus, if a water molecule can vibrate at a frequency of about 4.28×10^{14} vibrations per second then light having this frequency, which has a wavelength of 700 nm, and which is perceived as red, will be absorbed by the molecule. *And if you remove some of the red light from white light then it will appear bluish.*



White light is made up of all colours in the visible spectrum. Remove the reds and you are left with the blues.

Amount of light absorbed

To find the total absorption of light over a passage-length of l cm we use Lambert's Law, which states that each layer of equal thickness absorbs an equal fraction of the light which traverses it. The constant a is called the absorption coefficient, and is defined for a given unit of length and a given wavelength. Lambert's Law can therefore be expressed in the equation:

$$I_1 = I_0 e^{-al}$$

Where I_0 = intensity of incident light and I_1 = intensity after passage of length l .

The intensity of the transmitted radiation thus falls exponentially with the thickness of the substance being transversed.

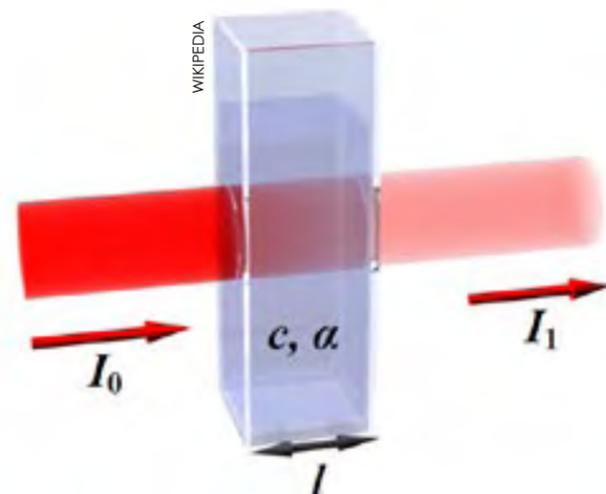


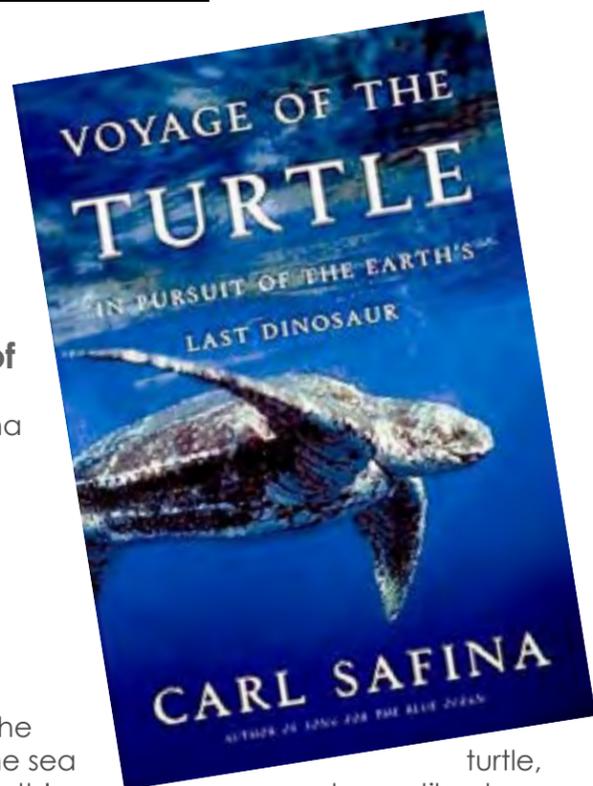
Diagram of Beer-Lambert absorption of a beam of light as it travels through a cuvette of size l .



Books Film DVDs CDs

Edited by Peter Symes
& Gunild Pak Symes

**POINT & CLICK
ON BOLD LINKS**



Voyage of the Turtle

by Carl Safina

Publisher:

Henry Holt

Hardcover:

383 pages

ISBN:

0805078916

List Price:

US\$27.50

Older than the

dinosaurs, the sea

the last of Earth's

monster reptiles, has

lost 95 percent of its population in the last 20 years

due to direct or indirect human contact, long-line

fishing nets, primates feeding on their eggs and

hatchlings and people killing them for their shells in

order to make tourist souvenirs and gourmet soup.

Despite these obstacles, some sea turtle species are

recovering in the Atlantic ecosystems. Carl Safina

sets out to find out why there is such a discrepancy

between the recovery of sea turtles in the Pacific

compared to the Atlantic ecosystems. Funded by

the MacArthur Foundation, the author scoured the

world's beaches for answers and interviewed scien-

tists, conservationists, poachers and fishermen.

Sale Price: US\$17.33 at www.amazon.com

or GB£12.98 www.amazon.co.uk

US Navy Diving Manual Revision 5

Hardback : 968 pages

Publisher/Date :

AquaPress, Sep 2006

A must for all serious

divers, this manual is the

fifth version of the U.S.

Navy Diving Manual

published by AquaPress.

Widely regarded as the

technical standard in the

field of diving information and protocol, the US Navy Diving

Manual is comprehensive but surprisingly easy to read with

user-friendly volumes divided by subject matter including

diving principles and policies, air diving operations, mixed

gas surface supplied diving operations, closed circuit and

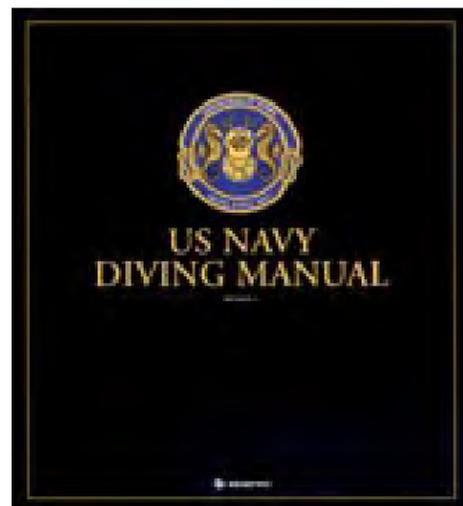
semiclosed circuit diving operations, diving medicine and

recompression chamber operations. Extensively researched,

this manual is used internationally by recreational, commer-

cial and military divers. Out soon: Get in line for your copy at

www.amazon.com or £89.98 at www.amazon.co.uk



what

files. While the DVD is not a replacement for actual training led by a

qualified instructor, it does serve as a useful study tool and reference

linking theory with practice. Price: US\$32.95 www.amazon.com

From 5thD-X/Breakthrudiving comes a

new DVD, Technical v.1.0, which is tar-

getted at divers who are thinking about

getting into technical diving or just want

a review of those skills that need a brush

up or were not covered in their own train-

ing. Topics covered include line skills, no

mask skills, nine failures when things go

wrong, stage bottle work plus flow sheets

for the nine failures, technical/trimix

instructor voice-over on key points, grease

pencil illustrations that clarify principles

and increase visual retention, flow charts,

ratio deco, battle field calculations and

video of actual technical dives around

the world. See how things are done cor-

rectly on video before you do it yourself, plus

to do when things go wrong. Supporting PDF

Kingdom of the Seahorse

Running time: 56 minutes

Rating: NR (Not Rated)

Formats: Closed-captioned, Color, NTSC

New from WGBH Boston Video, Kingdom

of the Seahorse explores the life and

times of these amazing creatures in an

underwater enclave off

the reefs of Australia.

Biologist Amanda

Vincent gives a fas-

cinating account of

the curious creatures'

importance and habi-

tat in the underwater

realm. Price: US\$17.99

at www.amazon.com



NEW GAME: Red Ocean

From the devel-

opment house

Collision Studio

and publisher

Anaconda comes a new game, Red

Ocean FPS, to be released in Febru-

ary 2007. In the game, underwater

elements are combined with innova-

tive shooter gameplay. You are Jack

Hard, diving instructor and treasure

hunter, who discovers an abandoned

Russian underwater research station

controlled by a terrorist cell. You, of

course, get caught in their devious

plans, but there's a twist. Players can

use water in solid, liquid or gas to get

rid of enemies. With hot steam or slip-

pery ice, you ambush enemies while

scuba diving.



Below Freezing: The Antarctic Dive Guide

By Lisa Eareckson Trotter

Paperback: 116 pages

Publisher: Wildguides

Date: 2006 July 25

Having logged over 400 hours

exploring the Antarctic waters,

author Lisa Eareckson Trotter

has a wealth of experience

and information to share with

readers regarding diving and

dive sites around the South

Georgia Islands and the Ant-

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25 dive sites with easy-to-

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descriptions fill the books

pages, which also includes

a history of local diving,

how to choose a dive op-

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you will see and what you

can expect, special notes about

leopard seals, site conditions, awesome color pho-

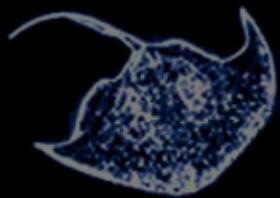
tographs and a description of the wildlife you will see above

and below 7 meters. A must-have guide for anyone serious

about diving in the Antarctic, Below Freezing offers a quality

dive guide and reference for those with a thirst for adventure.

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Oil and Water do mix!



Oil and water can for the first time be mixed and separated on demand thanks to a new, reversible surfactant.

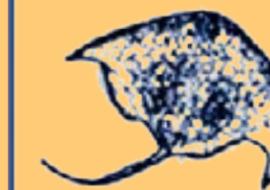
The genius of the new surfactant lies in its reversibility. Unlike existing ones, it can be switched "on" or "off" repeatedly. The switches are very simple too: carbon dioxide and air.

"Bubble carbon dioxide through a solution and the surfactant switches on, leading the oil-and-water mix to form an emulsion," explains Philip Jessop at Queen's University in Kingston, Ontario, Canada

"To switch it off again, you bubble air through it, and the oil and water separate again," he says.

The liquid molecule could prove invaluable in mitigating the environmental damage caused by oil spills, such as the one currently spreading

Wet & Weird



News edited by
Gunild Symes

along the coasts of
Lebanon and Syria.

Surfactants must have two ends: a water-loving



X-ray mag

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Dolphin trapped in Speedos

A lucky adolescent male bottlenose dolphin, known as Scrappy, is back to living nude and free in Florida's Sarasota Bay after making a potentially fatal wardrobe choice, the Chicago Tribune reported

The drama began July 6, when a member of the Brookfield Zoo marine mammal research team working in the bay spotted Scrappy unaccountably and uncomfortably swimming around while wearing a black, Speedo-brand man's swimsuit.

"He must have found the swimsuit floating in the water," said Randall Wells, a population biologist who runs the Sarasota Dolphin Research Program for the Chicago Zoological Society, Brookfield Zoo's parent organization. "Somehow he got his head and torso through the waist and one of the leg holes of the suit, and it was hugging him right where his pectoral fins and body meet."

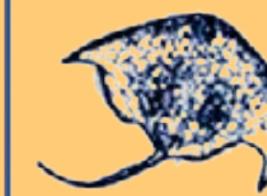
The project team feared the tight-fitting, non-rotting synthetic cloth suit could injure or kill the dolphin as eventually it could cut deeply enough to sever arteries, causing him to bleed.

When the swimsuit was still stubbornly clinging to Scrappy after three weeks, the team got an emergency rescue authorization from federal officials who monitor its work in the bay.

Scrappy's capture turned into an all-day ordeal with fast boats carrying 31 people in total racing across the bay after the animal, trying to surround it with a net. When they finally dolphin caught the dolphin, the suit had made cuts a half-inch deep and three-quarters of an inch long in front of each fin. Scrappy was visibly underweight and also had a fresh, visible but non-serious shark bite, both conditions probably caused by a hampered ability to swim because of the suit.

"We felt his injuries weren't that serious, so after we removed the swimsuit, we cleaned the wounds and gave him a strong antibiotic. Then we attached a small radio tag to one of his fins and, after about half an hour, we let him go." With the radio tag, his team can locate the animal easily every day, Wells said, and Scrappy, who as an immature male still lives mostly by himself, has shown no ill effects from his wardrobe experiment

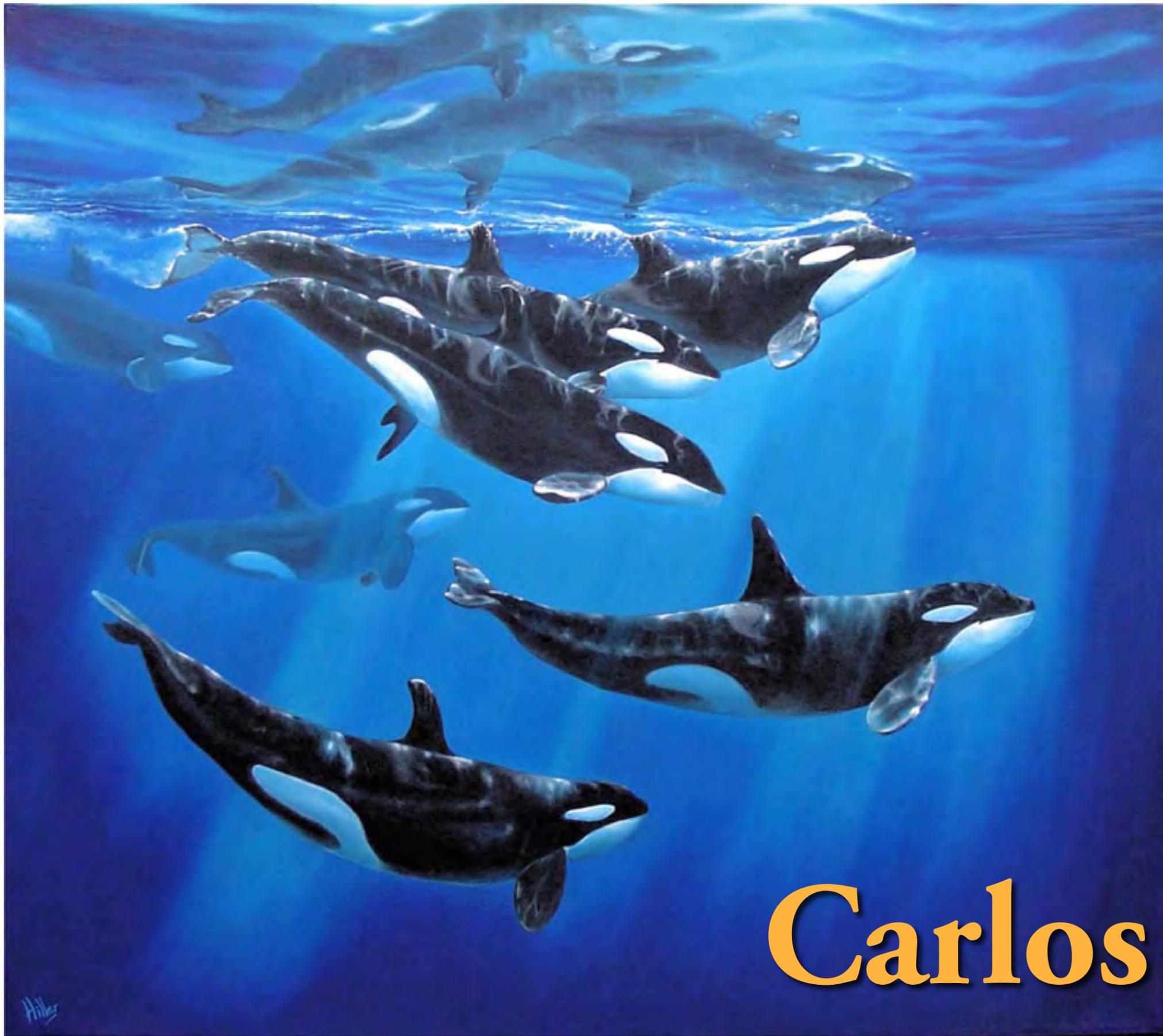
Wet & Weird



News edited by
Gunild Symes



YVANE FROST



portfolio

Text edited by Gunild Pak Symes
All images by Carlos Hiller



ABOVE: *Manatíes*, by Carlos Hiller. Oil on canvas
LEFT: *El Viaje*, 2001, by Carlos Hiller. Oil on canvas, 47x53 inches

“When I am diving or just snorkelling, all I have in mind is the marine environment, the light travelling to the deepness, my breathing. I only care about the life surrounding me, the exploration, and the colours...”

— Carlos Hiller

Carlos

Hiller

Painter of Ocean Light





Calma, 2003, by Carlos Hiller. Acrylic and oil on canvas, 59 x 27.5 inches

The art of Carlos Hiller is devoted to the ocean. His paintings bring powerful images brimming with energy and marine life into our daily lives. Huge schools of fish and diverse marine creatures are usually present on his paintings which evoke the mysterious atmosphere of the underwater

world. Some works are split images, giving us views above and below the surface of the water at the same time in one painting.

His images have an extraordinary sense of depth and dimension. Carlos explains, "The ocean makes me feel happy, and

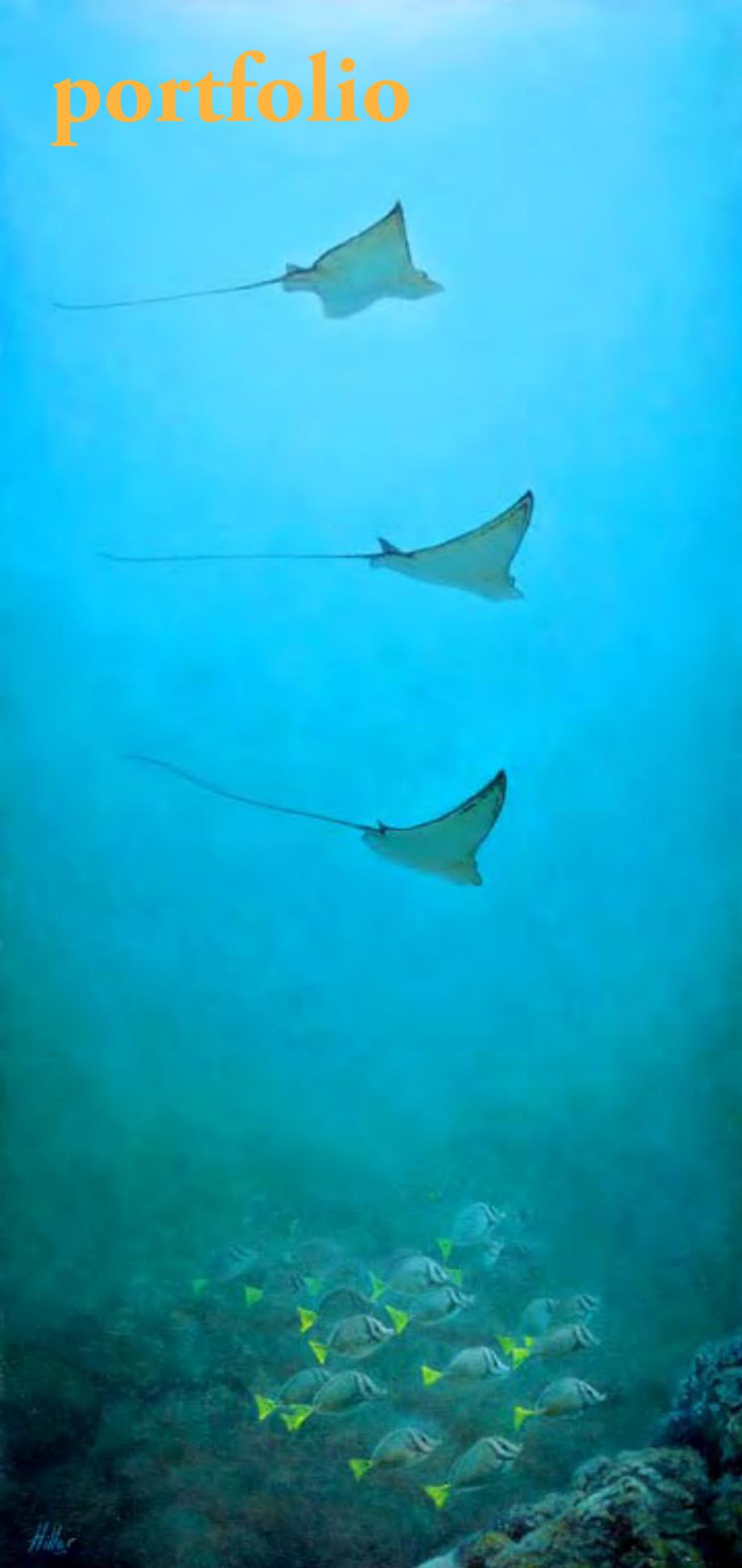
my paintings reflect that feeling. It is very simple, like the best things in life. My aim is to capture emotions and to capture the ocean light."

To achieve this, Carlos uses a laborious technique involving the layering of colors in paint. He starts with an initial background

colour and adds thin colourful layers of paint that form a complex final colour. When light passes through these different layers, it gives us an impression of atmosphere and water. Rather than passing through the canvas, light is returned to us from the various layers of colours of paint.

Early beginnings

Carlos was born in Argentina. From an early age, he enjoyed travel, adventure and exploring new places. Indeed, he once travelled the length of the Parana River in Argentina on a rudimentary river craft, right down to the sea.



Carlos Hiller

As a result of the impressions he acquired during travels in Latin America, the young Carlos painted landscapes of the Amazon and the Central American forest. When Carlos started diving and investigating the submarine world, he began to incorporate ocean elements into his forest paintings, such as schools of fishes and dolphins swimming into the vegetation. "It was a confusing phase" said Carlos smiling.

He then decided to immerse himself into the underwater realm completely by taking a diving course and devoted himself exclusively to the ocean and painting.

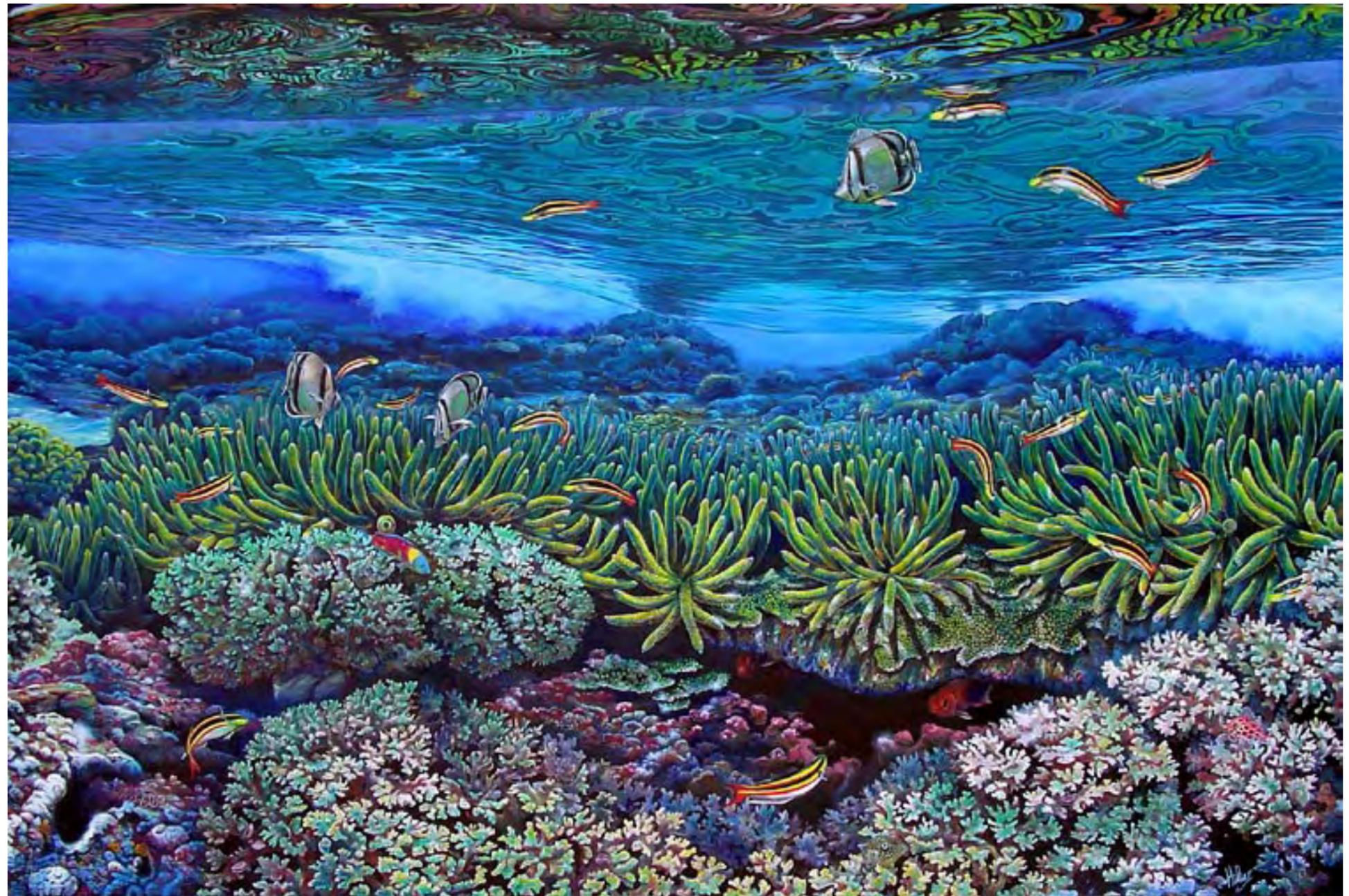
Now, at age 34, Carlos sells all his paintings systematically: "I like the idea of my paintings hanging on the walls of different offices and homes and people having a moment of relaxation at the sight of them."

When one looks at his art, one can see a great diversity of subjects and ways in which they are approached. There is a great deal of quality in the details. Carlos explains:

CLOCKWISE FROM LEFT:
Tres Águilas. Oil on canvas
El Jardín de las Águilas. Oil on canvas
Manta y Cardumen. Oil on canvas
Manta. Watercolor on paper

All images by Carlos Hiller

LEFT: *Árbol y Mar*, 2003, by Carlos Hiller. Acrylic and oil on canvas, 89 x 47 inches
 BELOW: *El Bajo del Coral*, 2002, by Carlos Hiller. Oil on canvas, 48 x 72 inches



"Sometimes it happens that only one dive provides me with so many images that I really get busy for a long time. Then, it is difficult to decide what to paint—everything is so wonderful! As I do not follow any formula, I do not repeat my paintings. The ocean is like that—every image it offers is unique and unrepeatable. Anyway, who has had two diving experiences exactly the same? People often ask me how long it takes to finish a painting, the answer is: Until I feel I have finished it! It can be 20 days or a lot longer. The important thing

for me is to work only when I feel inspired and happy. If something is missing, it is time for a plunge!"

Carlos also practices underwater photography. For him, this is a useful tool to capture fundamental details.

He exhibits his artwork in Costa Rica, where he has lived for 12 years, and lately, he has started exhibiting his work in other countries, especially in the United States.

Whenever requested, Carlos gives live performances of painting as a new way of get-

ting closer to the public. In the course of a few hours, Carlos will create a painting with a wonderful display of colour and energy and spectators become participants of the process of creation.

Carlos often creates commissioned works too, and he paints anything from miniatures to murals, although it is clear enough that he prefers the big format, considering that the ocean itself gives us immediately the sensation of great breadth and space.

One of Carlos' next challenges is to paint a



CLOCKWISE FROM LEFT:
Confluencia (detail), 2001
Oil on canvas, 56 x 45 inches

Energía II (detail)
Oil on canvas

Morena y Pulpo
Oli on canvas

Mar Amor, 2002
Oil on canvas, 46.5 x 51 inches

All images by Carlos Hiller



Carlos Hiller



CLOCKWISE FROM LEFT: *Escape Marino*, 2002, oil on canvas, 65 x 58 inches; *Totuga y Nube*; *Centallas*; *Peces y Atmósfera*, 2003, acrylic and oil on canvas, 59 x 44 inches; *Roca Mantas*

gigantic mural, with plenty of details, and to capture again the emotion, the colour, the energy of the sea and the ocean light.

Carlos achieves an exact representation of marine nature in his paintings, even though this is not his principal aim. Through symbolic associations, beyond our common senses, he enhances the images emotionally. This way, Carlos melds, in a new dimen-

sion, nature and art as a bearer of purely abstract elements. His paintings irresistibly attract all eyes. The images are so powerful that they even transmit a sense of freshness.

The painter brilliantly combines diverse factors, like the selection of colours, the "big format", which is Carlos' favourite, to give us the possibility of feeling "immersed" in the painting. Carlos makes a deliberate use of

portfolio



CLOCKWISE FROM LEFT
Escuadron (detail)
Oil on canvas

La Playa de Aguas Claras, 2002
Oil on canvas, 33 x 43 inches

Isla
Oil on canvas

All images by Carlos Hiller

optical illusion as a resource to help viewers transcend from the ocean depths into the depths of our own humanity.

For more information and to order directly from the artist, please visit Carlos Hiller's web site:

www.carloshiller.com

For inquiries about original artwork or prints please e-mail: info@carloshiller.com or call +(506) 6664878 in Costa Rica.

Greeting cards of Carlos Hiller's artworks are available at the X-RAY MAG Boutique:

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KAREN GOWLETT HOLMES



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