

PNW

May/June 2015

DIVER

M A G A Z I N E

Featuring:

Talia Cohen
Santiago Gutierrez
Annapolis Sinking

and more



01 About the Magazine

2015 May/June PNWDiver



Cover photo by Talia Cohen

Olympus OMD EM5, 8mm Fisheye, ISO 800, F8, 1/60

The Pacific NorthWest Diver Magazine is published bi-monthly and is a publication of the Pacific Northwest Underwater Photographic Society (PNWUPS), which is an organization formed to encourage interest and participation in underwater photography. The organization's central goals are: to provide an environment where photographers can help other photographers improve their skill; to promote Pacific Northwest underwater photographers; and to share the beauty of our underwater environment with the non-diving public. If you have an idea for a story or would like to present an article for consideration, please contact the editor/publisher.



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I must admit, being the publisher of a magazine has its perks. And I certainly enjoyed those perks when it was time for the sinking of the Annapolis: being up close to the action in the hours before the event: getting the inside story.

I chose to give the Annapolis a lengthy feature because of the wonderful opportunities this wreck is providing us photographers (and videographers). Having dove this wreck one day now, the two dives weren't even close to satisfying my urge to explore this ship. The wide angle opportunities are wonderful, albeit dark, and it gave me a chance to practice even though the visibility above 20' was absolutely horrible. If you are from out of town, I would encourage you to come and explore our new wreck. After all, everything in Canada is on sale for American visitors. Midweek charters are available and are wonderfully small. You'll have the ship to yourself.

On another note, while many folks have told me in person how much they are enjoying the magazine's new format and expanded content, a majority of our readers are from Washington. I'm not getting feedback from

the majority demographic. If you have time, would you fire off an email to me letting me know your thoughts? I'm wondering how you are reacting to the content?

- Is there too much 'Canada'?
- What areas of photography do you want covered?
- I am struggling with getting people to contribute to the 'Your Lens. Your Story' section. Any ideas on how I can encourage people to contribute?

Although I have a handle on events from BC, I don't from Washington and Oregon. Are there events in the works that I should know about? If there is, please let me know so that I can do my best to incorporate it into the magazine.

As James Cash Penney says, "Growth is never by mere chance; it is the result of forces working together." Let's work together to make this 'your magazine' – participation encouraged.

~Kerry Enns
editor@pnwups.com
www.celticcow.com

Into The Archives: Paradigm Shifts That Changed The Way We Dive

Part One: Breaking free from the surface

Written by Dale Carlisle

Image © Michel Joseph

As modern day divers we probably think that the way we dive, our equipment, techniques and concepts, have been around for a long time. After all, they seem so natural and intuitive to us that it must have been that way for others in the past as well. Tank on our back, fins on our feet, camera in hand; we drop down swim around and float back up with relative ease. But for centuries, man's concept of who a diver was, what he did underwater, and what he would need to do it was a diverse collection of ideas far different from what we know today. To get from back then to where we are today people had to change not only the equipment, but also how they thought about diving itself.

Before SCUBA

When looking at the changes that created modern diving it would be helpful to understand how things were prior to this era. To do so we need only turn back the clock a little more than 150 years.

Divers of an earlier time could generally be divided into two groups: Breathhold divers, like the Ama women of Japan or the pearl divers of the Caribbean; and surface supplied divers, using hoses to connect them to the surface.

The first group were be called "naked", whether they were clothed or not, because they employed little in the way of equipment to do their job. The term would later change to "free" or "skin" diver and since then has indicated a style

that employs less equipment than the accepted standard. While highly valued for shallow water salvage, naked diving was not identified as an ideal to be emulated. Often foreigners, those divers, although skilled, were seen as being exotic in nature and ultimately limited by the time and depths to which they could hold their breath.



The second form of diving pursued by the west for centuries, and in keeping with its cultural belief of progress through technological innovation, carried the label “Armored”, both because of the heavy equipment employed and the ideology behind its approach. Europeans tended to “lay siege” to problems and life beneath the surface was considered benignly hazardous at best and more often overtly malicious. It was a time when sea monsters were still widely considered to exist. Thus,

divers were imagined to need some form of “armor” in order to venture forth like Conquistadors into the unexplored sub aquatic realm. Early illustrations show such divers bearing halberds, axes and even metal breastplates.

Along with the notion of soldiering forth underwater came the accepted norm of walking across the bottom instead of swimming. Part of this is self-explanatory: few Europeans in the past actually knew how to swim effectively. Beyond that though, the heavy equipment utilized by armor diving did not lend itself to moving freely within the water column nor did the surface supply hose needed for air.

Rouquayrol, Denayrouze and the first attempts to cut the cord

The first paradigm shift away from equipment intensive, benthic diving occurred around 1860 when the partners Benoit Rouquayrol and Auguste Denayrouze created and patented their revolutionary new breathing apparatus. Originally conceived for land use, the device, worn like a backpack, was an early form of demand regulator similar to that used by modern divers.

This apparatus was connected to the surface like all other armored suits by an umbilical hose, but it also employed a small

reserve air chamber that allowed for short, untethered forays beneath the water. This device, which regulated both atmospheric pressure and inhalation demand predated that of Cousteau and Gagnan’s invention by almost 80 years, and might have been popularized as the first practical SCUBA if it were not for the fact that the reserve tank contained too small a volume of air (due to its low pressure design). Because of this shortcoming it was never completely trusted for independent use and divers of the time thought of the reserve tank more as emergency bailout if the surface supply failed.

Fleuss, Davis and the rebreather movement

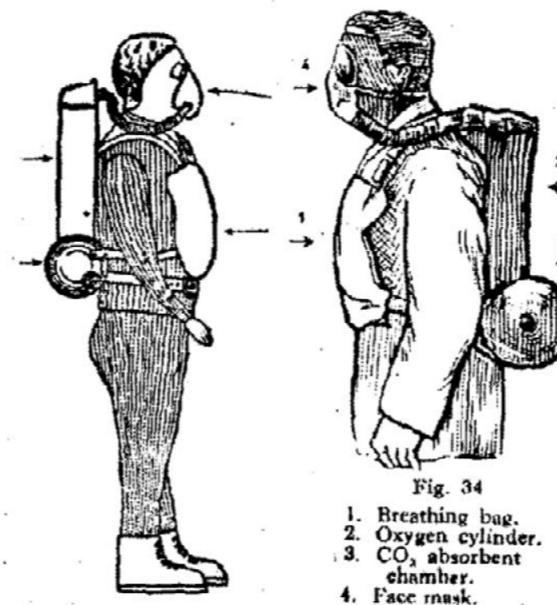
Concurrent with air devices like the Rouquayrol/Denayrouze Apparatus, Henry Fleuss was developing another avenue of untethered diving through the invention

and refinement of the oxygen rebreather. Like Rouquayrol, Fleuss first imagined his invention as a fire and flooded mine escape tool but its underwater application soon became apparent. Patented in 1878, the Fleuss rebreather was the first truly practical underwater breathing apparatus of its kind.

In 1910 Sir Robert Davis of the Siebe Gorman Company continued to work on rebreather technology and created the Davis Submerged Escape Apparatus (DSEA) which was adopted by the Royal Navy for use in submarines. Draeger of Germany also developed a rebreather around this time, a version of which was used by Hans Hass during his underwater photographic expeditions. Rebreathers continued to be developed and used through both world wars (and into the present day) but at their inception depth limitations due to oxygen toxicity restricted their use to primarily shallow water diving.

Riichi, Yves LePrieur and the Michelin man

Until the early 1920’s there were still only two practical choices for untethered diving – the Rouquayrol/Denayrouze Apparatus, now adapted to a helmet, and Fleuss inspired oxygen rebreathers. In 1918, a Japanese invention, the Ohgushi Peerless Respirator was patented by Watanabe



Riichi. This odd device could be used in both surface supply and untethered compressed air mode and had the diver breath through the nose via a regulator controlled by the teeth. This was later improved upon by adding a full face mask but because of anti-Japanese sentiment at the time, the Ogushi device did not catch on in the west.

In Europe, a French naval officer Yves LePrieur observed the demonstration of an underwater device created by Maurice Fernez. This was a simple mouthpiece arrangement connected to a surface hose (like modern hookah diving) that provided a constant supply of air, the excess of which escaped via an exhaust valve.

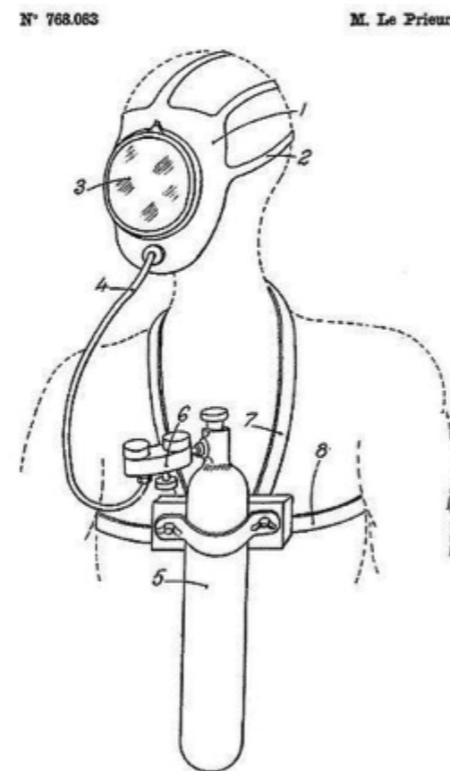
LePrieur determined to take the concept one step further by severing the surface umbilical completely. This was the step that eluded Rouquayrol and Denayrouze in 1860. Fortunately for LePrieur the invention and popularity of the automobile in the 20th century meant the need for tire inflation and the Michelin Tire Company met that demand by manufacturing high pressure air tanks. With a full face mask attached to these high volume portable tanks, the LePrieur Apparatus became a true underwater compressed air device and allowed its users to make limited free diving forays to moderate depths. It was widely adopted by the French navy and also saw common recreational use during

the 1930's, with the formation of the world's first diving club.

Oddly enough, while solving the compressed air problem of the 1860's, LePrieur's invention did not have a demand regulator. Instead, the flow was controlled by a hand operated valve. This meant a significant portion of the diver's air supply was wasted by escaping unused out exhaust valves in the mask.

The Commeinhes and Cousteau/Gagnan regulators: Free at last

The final pieces of the puzzle that released divers from the restriction of surface supplied air were put together by two parallel



groups of inventors that operated unaware of each other in Western Europe during the early 1940's. The first was the father/son team of Rene and Georges Commeinhes.

Again, originally conceived for land use, father Rene developed a workable demand valve regulator in the early 1930's which his son Georges later adapted and patented for underwater use (with compressed air tanks). The first commercially available unit, the "GC42" was manufactured in



limited numbers but production soon became curtailed by the war. Georges Commeinhes, the driving force behind the company was killed in 1944 and the GC regulator was eventually forgotten.

In 1942 occupied France another inventor named Emile Gagnan, working for Air Liquide, was creating a demand regulator designed for automobile engine use due to the strict rationing of petrol. The owner of Air Liquide also had a son in law named Jacques Yves Cousteau, a French Naval officer very interested in underwater swim-

ming. It wasn't long until the two developed and tested their own version of an underwater demand regulator. With his father-in-laws assistance, Cousteau arranged for three units to be produced and he and his friends began diving with them. After the war, Air Liquide formed the company La Spirotechnique which began commercially producing the "CG45" or Aqua-Lung. La Spirotechnique later formed U.S. Divers to distribute Aqua-Lungs to the North American market.

And so history remembers Cousteau, the promoter, writer and filmmaker for popularizing diving in a way that has not declined since, emphasizing the free and unfettered style in which one could swim as "fish men exploring a new world" beneath the sea. Gone forever was the expense and equipment of helmeted diving and the omnipresent tether that kept divers connected to the surface for centuries before.

Next issue.

Part Two: Getting Divers Off the Bottom

References:

- *History Under the Sea*. Mendel Peterson. Self Published, 1973.
- *Man Under Water*. Henry Billings. The Viking Press, 1954.
- *World Beneath the Waves*. Gilbert Doukan. John De Graff Inc, 1957.
- *The History of Underwater Exploration*. Robert Marx. Dover Publications, 1973.
- Article: *Fish Men Explore a New World Undersea*. J.Y. Cousteau. The National Geographic Magazine. Oct. 1952.
- Various Internet sources.

Lu-Jac's Quest For Sale

Divers Dream Charters in Anacortes is hoping for new owners to carry-on the fine tradition of high quality dive charters.

By Phillip Jensen

We were so excited and pleased to find and purchase Lu-Jac's Quest and begin "Divers Dream Charters" in 2003. It has been a great experience with a good boat and clients to match. In the beginning we both worked full-time and built up our business, customers, and friendships. Now I am semi-retired and my wife is fully retired.....with grandchildren arriving, goals to travel, see family and friends.....after 12 years of running Lu-Jac's, we have decided it is time to sell the boat/and/business.

When we bought the boat there was minimal business and Lu-Jac's Quest was virtually unknown in the recreational dive industry, the town of Anacortes, and this state. Over the last 12 years we have developed repeat customers from all over Washington and Oregon and we have divers contacting us through our web site from all over the United States interested in diving the San Juan Islands.



©Barb Roy

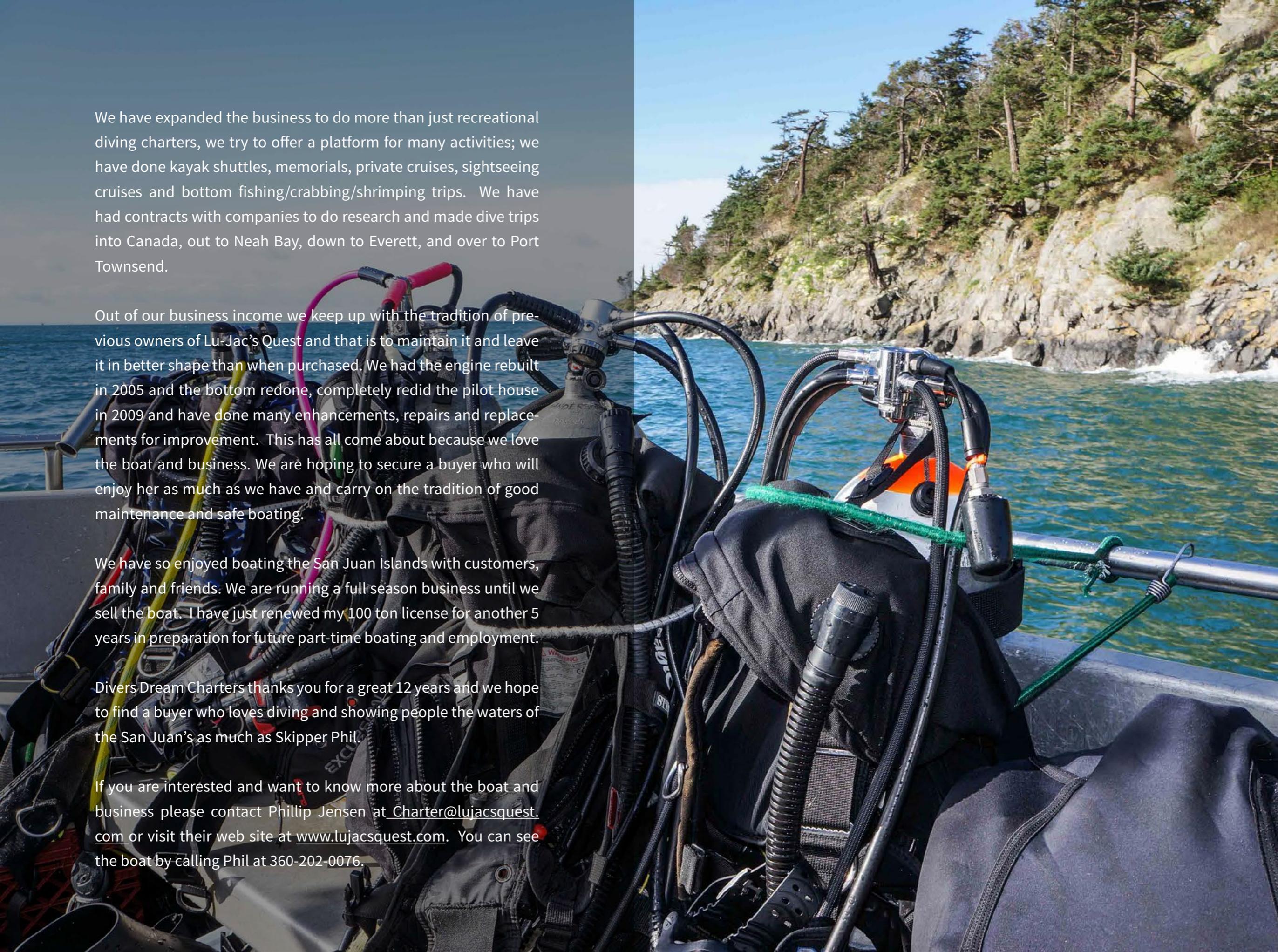
We have expanded the business to do more than just recreational diving charters, we try to offer a platform for many activities; we have done kayak shuttles, memorials, private cruises, sightseeing cruises and bottom fishing/crabbing/shrimping trips. We have had contracts with companies to do research and made dive trips into Canada, out to Neah Bay, down to Everett, and over to Port Townsend.

Out of our business income we keep up with the tradition of previous owners of Lu-Jac's Quest and that is to maintain it and leave it in better shape than when purchased. We had the engine rebuilt in 2005 and the bottom redone, completely redid the pilot house in 2009 and have done many enhancements, repairs and replacements for improvement. This has all come about because we love the boat and business. We are hoping to secure a buyer who will enjoy her as much as we have and carry on the tradition of good maintenance and safe boating.

We have so enjoyed boating the San Juan Islands with customers, family and friends. We are running a full season business until we sell the boat. I have just renewed my 100 ton license for another 5 years in preparation for future part-time boating and employment.

Divers Dream Charters thanks you for a great 12 years and we hope to find a buyer who loves diving and showing people the waters of the San Juan's as much as Skipper Phil.

If you are interested and want to know more about the boat and business please contact Phillip Jensen at Charter@lujacsquest.com or visit their web site at www.lujacsquest.com. You can see the boat by calling Phil at 360-202-0076.





Less Ice, More Whales: Grey Whales in the Atlantic

Written by Ben Normand

Of all the whales that roam the waters of the Pacific Northwest, the Grey Whale is a likely candidate for the one that you, Pacific Northwest Diving Enthusiast, will see most often. This is because they tend to stay within a few miles of shore, due to the fact that they feed on small organisms which they filter from the muddy bottom of the shallows. This tendency to stay close to shore made these whales a favorite for those whalers who strove to make their belligerent charge through the blue as short and profitable as possible. This hunt was so effective that Atlantic Grey Whales were considered extinct by the mid-20th century, a notion reinforced by the fact that no one refers to existing Grey's as Pacific Grey Whales anymore.

For those who sought to kill them then and those who wish to observe them now, identification is easy. Often referred to as a breathing rock, their naturally grey skin appears mottled and multi-tonal due to healthy and varied communities of organisms that live in and on their skin.

This characteristic appearance and feeding style makes the Grey a favorite for under and on water photographers. One needs not venture far out to find them, they are known to be rather playful and they are often willing to approach vessels. Their skin also offers a colourfully dynamic focal point for any photograph.

Another defining characteristic of the Grey Whale is their tendency to migrate over enormous distances. Indeed, of all the mammals on Earth, they are contenders for the longest migrators. It is estimated that some members of the eastern Pacific population will complete 20,000 km round trips, traveling from the warm, sexually charged

lagoons of Mexico to the frigid and bountiful waters of Northern Alaska.

Until rather recently, it was thought that they were restricted to the Pacific Ocean, destined to be forever bound by the unrelenting ice pack of the Arctic. This assumption, like so many others about the baleen whales, has been thrown out the porthole due to the unexpected actions of its grey subject.

In May 2010, a Grey Whale was spotted by biologists working off the coast of Israel. After snapping a picture and analyzing it extensively, they concluded that the whale they saw was, indeed, a Grey. This very same whale was spotted again three weeks and over 3000 kms later off the coast of Spain. It has not been spotted since.

The photographs taken by the biologists were contentious, to say the least. Many in the scientific community patronized the biologists by gently reminding them that this was impossible, that perhaps they had misidentified the whale. Some even went so far as to accuse them of photo-shopping. The debate continued until 2013, when a second Grey Whale was spotted off the coast of Namibia.

With this second appearance, one great question arose: where did they come from? The

answer to this question is, as per usual in this modern age, climate change. As we continue to pump greenhouse gases into the atmosphere, the climate warms and we see openings in the Arctic Sea ice. This allows the ever mobile Grey to reenter the seas once populated by their not-so-distant ancestors. In other words, whereas the Greys would encounter solid ice in Alaska and turn back, they now just keep on going.

The lesson to be had for us west-coast divers from all of this? We must now share this most charismatic and beautiful animal with the other coast(s). Perhaps there is a silver, or rather grey, lining to climate change.

Source: Zimmer, Carl. "Whales on the Wrong Side of the World". The Loom. National Geographic. March 10, 2015. Web. April 10, 2015.

Kerrick James is a working travel journalist based in Arizona, who has photographed and touched the gray whales of Baja California many times. He also teaches photo workshops, both group and custom, through his company, www.kjphotosafaris.com He welcomes photo queries of all types.

Photo Credits:

Grey Whale peering – Joe McKenna via Flickr

Grey Whale approaching boat –

©2015 KerrickJames.com



An underwater photograph showing a thick, braided rope lying on a sandy sea floor. The rope is illuminated from above, creating a strong shadow. The water is dark and slightly murky, with some light rays visible. The overall scene is dimly lit, typical of an underwater environment.

Annapolis Rests Perfectly on the Sea Floor

After years of work, waiting and court cases, the HMCS Annapolis is ready to take on underwater visitors.

by Kerry Enns



Last minute preparations aboard the ship and tug boats



Detonation experts making final preparations in the hull of the Annapolis

At 13:07 on April 4, 2015 the final air horn blast was heard in Halkett Bay, signifying the end of HMCS Annapolis' life above the water. It took approximately two minutes to find her resting place on the sea floor.

HMCS Annapolis was a Canadian built 113m, steam-powered, helicopter-carrying destroyer. Her main weapon was the Sea-King helicopter and featured an amazing winching system to safely land the helicopter in rough seas. The Artificial Reef Society of British Columbia (ARSBC) acquired the ship in April 2008, with plans of sinking it to create an artificial reef in Howe Sound. In the January issue of the magazine, we ran a feature called "The Annapolis Story" found [here](#).

Media, Directors of the ARSBC and technical divers arrived at the site around 8:00am. The weather was dreary, but the mood was not. Detonation experts were laying out the yellow detonation cord which we could be seen on the exterior of the ship.



Howie Robins, President of ARSBC, has been spearheading this project. Joe Weatherby was also on hand, who spearheaded the sinking of The Vandenburg, a US Naval ship. That project lasted for 13 years and culminated in creating an artificial reef in Key West, Florida in May 2009. The video of that sinking can be viewed [here](#).

As was predetermined, an hour prior to the sinking, a red flag was revealed from the bridge of the Annapolis. A yellow flag was revealed a half hour prior, and a ten minute 'heads-up' was indicated with a green flag. Two long blasts from a horn indicated the charges were about to go. At 1:07 p.m. four blasts comprising of 12 cutting charges began the process. In only 2 minutes, the Annapolis was no longer visible. Geoff Grognet posted a high definition video of sinking. It can be viewed [here](#).

There were over 200 boats in attendance and more than 4300 webcast viewers.



Howie Robins rescues a drone that crashed into one of the stacks



Joe Weatherby takes one last walk around the deck



Over the next hour, the water continued to bubble as air made its way out of the vessel. Soon, technical divers would descend on her to release the ties and check her position. Alan Wong shares his check out dive with us on [Vimeo](#). She landed upright on her keel, just as planned in about 100' of water. The following day clearance divers ensured that the explosives were fully detonated and the banners removed. "This was by far the best executed sinking operation for the Reef Society." said Howie Robins.

Michael Keffer, [in his video](#), takes us through several of the other BC wrecks. It is astounding to see the life on these reefs. But for now, the Annapolis is clean and erie looking.



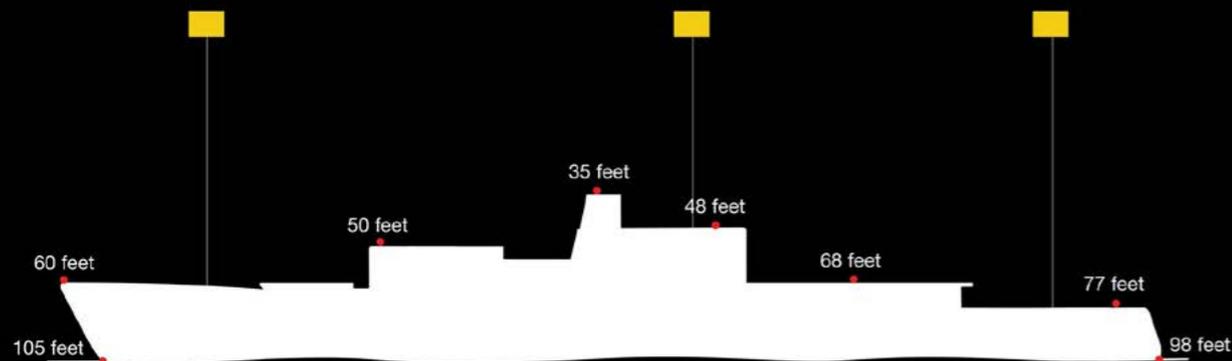
The Wreck Trek Of British Columbia
The Ten Wreck Circle Tour of British Columbia Legend

- HMCS COLUMBIA
- WRECK OF THE GULFSTREAM
- WRECK OF THE CAPILANO
- HMCS CHAUDIERE
- HMCS SASKATCHEWAN
- HMCS CAPE BRETON
- XIJHWU BOEING 737
- MV GB CHURCH
- HMCS ANNAPOLIS
- HMCS MACKENZIE

British Columbia Wreck Trek



The Artificial Reef Society
of British Columbia



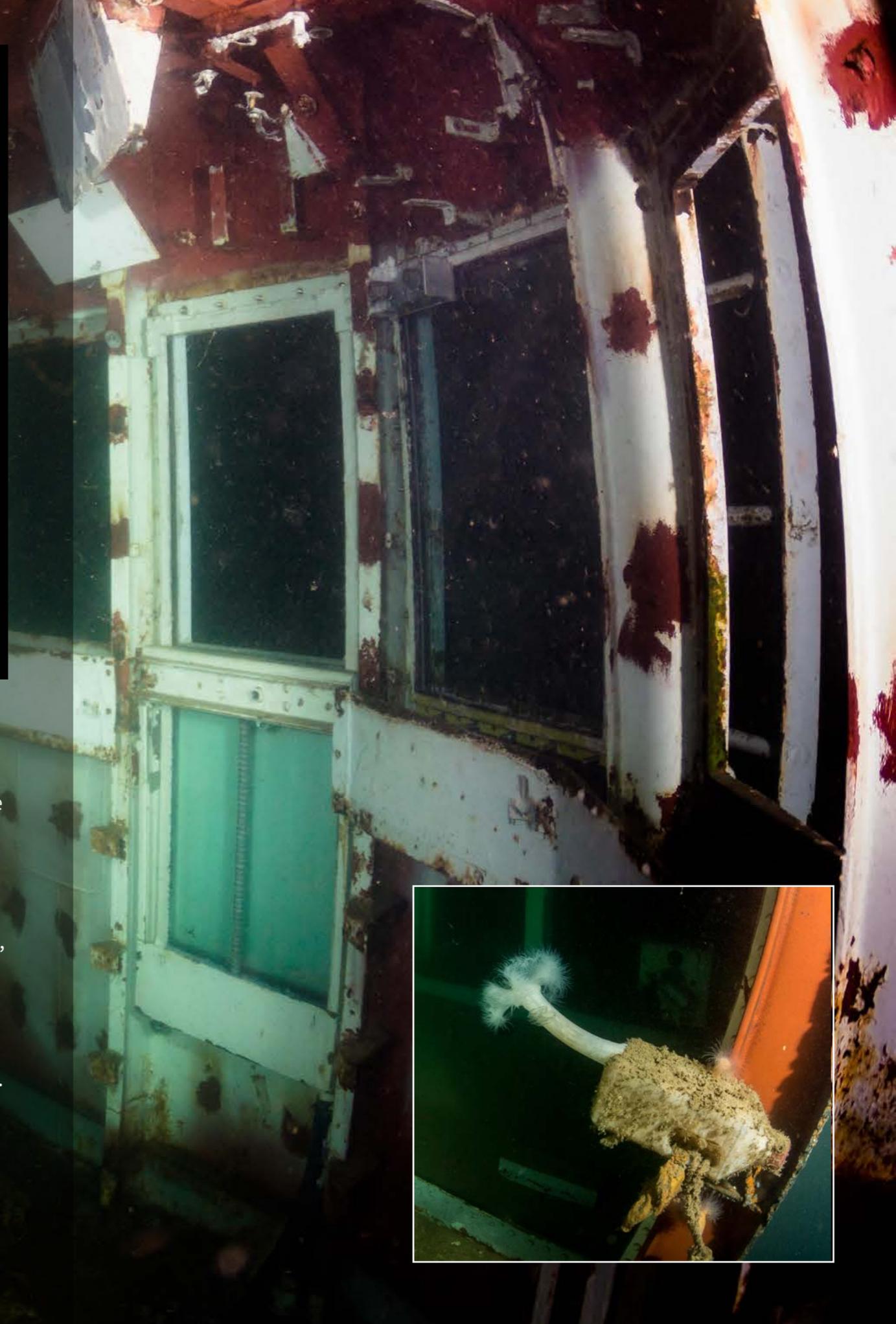
Former HMCS Annapolis
(low tide)

www.artificialreef.bc.ca

Diving the Annapolis

On Monday following the sinking, the first of the recreational divers were able to see the reef from the outside, with remarkable visibility of 20-30'. Marc Palay, who spent many hours working on the Annapolis, took our small crew out 10 days following the sinking. The boat ride from Horseshoe Bay is pleasantly short. Upon arriving we chose to moor on the stern line. On descent we simply followed the line, passed the safety stop rigging, and continued until the white shape of the boat began to appear. We were able to explore the hangar. Some objects have been dislodged from the blast. We swam around the exterior, poking our heads in the many cutouts. A layer of silt has already settled on the interior. The bridge is accessible but caution should be used if you decide to enter it.

We were thrilled to see life starting to make their way onto the reef. I saw a large school of small fish swim out of the reef. Others reported seeing gobies, crabs and shrimp in or around the reef. I was thrilled to see some plumose alive and well just inside one of the cutouts. We aren't too sure how it got there, but it was certainly was thriving.



What Took So Long

When writing the article for the January edition, the ARSBC looking forward to a sink day of Jan 17th, 2015. But at the 11th hour, an injunction against the Environment Canada put a stop to those plans with a hearing set for Jan 27, 2015. That hearing was further delayed for another month. Once again ARSBC found themselves at the mercy of the courts.

The allegations were that Environment Canada had not properly tested the antifouling paint on the hull and there still remain a dangerous level of toxins. Save Halkett Bay Marine Park Society wanted the Disposal At Sea permit overturned.

On March 10, 2015 the [results of the hearing](#) were made known. In short, the application was dismissed for two main reasons. Firstly, the original permit was issued Oct 2, 2014 and the application for judicial review was not filed until Jan 6, 2015, which is more than two months beyond the limit for challenge. The extension was denied. Secondly, the TBTs (Tributyltins) in the antifouling paint were found to contain less than 1% than what would be found in fresh paint. Since that paint was 20 years old, it was determined that the TBTs in the vessel's hull were no longer in an active state.

On March 31st, the HMCS Annapolis was towed to her sink site from Long Bay before media or the public was notified. Given the controversy so far, this was a good decision. Alan Wong, a technical diver who has been working with the ARSBC, shares his [video of the towing](#). On March 31, 2015 a press release was issued and the Sink Day of April 4, 2015 was announced.

What's Next for the ARSBC

There have been some rumors that the ARSBC were going to throw in the towel, so to speak; this is far from the truth. However, after several years of legal wrangling, the folks at ARSBC are resting. The coffers have been emptied because of legal fees and lower than expected recycling revenues. But while the sinking of the Annapolis was on hold, the Directors of the Society were formulating short, medium and long term goals.

As mentioned in the January Issue, Project A.B.I.S. (Annapolis Bio-diversity Index Study) is next on the agenda. The ARSBC is talking with government and other NGO's to document the changes that will occur on the Annapolis seasonally. This will be a citizen based science project. The goal is to work with marine biologists in order to validate the positive effects that artificial reefs have on the marine habitat.

They also hope to become involved in reef management. "Working with the greater dive community, we would like to start a systematic review on the condition on all our project reefs (their ropes, floats, hardware etc.) with the view of developing a plan to update this equipment using a standard format", says Rick Wall director of Communications for the ARSBC.

Thirdly, the ARSBC will be reviewing options towards organizing a full and active membership which will open up opportunities for volunteers to captain future projects and society programming.

Wall also indicated that since the successful completion of the Annapolis Project, the ARSBC has been in early-stage discussions with other interested parties about future

reefing projects that are unique and one of a kind opportunities for BC. "We are also starting to receive inquiries from outside of Canada on our management expertise for potential reefing opportunities." said Wall in a recent correspondence.

We at the magazine are thankful ARSBC, for providing a wreck to explore, photograph and video so close to Vancouver and a reef for our ocean critters to enjoy. We have no doubt that many divers from both Washington and BC will be visiting the Annapolis regularly.

How To Get To The Annapolis

Weekday and weekend charters are available through [New World Diving](#) and [Sea Dragon](#). Please contact them directly for information about bookings.

Marc Palay of New World Diving Ltd

Tel: 604-432-6636/Cell:778-893-5441

Sea Dragon Charters

Phone: 604-329-3486

How to Help ARSBC

ARSBC is a charitable organization and can offer tax-donation receipts for donations over \$25. This goes toward not only creating artificial reefs but maintaining them as well. Visit their [website](#) for more information.

Sources:

- Digest: Save Halkett Bay Marine Park Society v. Canada (Minister of the Environment) <http://www.lawyersweekly.ca/lawnet/736>
- Artificial Reef Society of British Columbia. <http://www.artificialreef.bc.ca>
- Correspondence with Rick Wall, April 12, 2015
- ARSBC Press Release, April 15, 2015

18 Feature Photographer

2015 May/June PNWDiver

Featured Photographer: Talia Cohen

By Talia Cohen



Olympus OMD EM5
8mm Fisheye, ISO 320, F3.5, 1/100



Born in South Africa, Talia Cohen has lived in Missouri, Rhode Island, New York and now calls Vancouver her home along with her husband and 2 dogs. She is creative director of a brand strategy agency in Gastown, and is a consultant to Pacific Northwest Diver Magazine

Throughout her childhood, Talia's parents loved to travel. Some of her most endearing memories include holidays to the Red Sea and Mauritius. Sporting her faux bright pink wetsuit complete with matching snorkel and mask, she enjoyed floating above ocean reefs. She grew up in Johannesburg, far from the sea. Her dream of diving was finally realized once her studies in Industrial design and economics were completed and she settled in the Pacific North West.

Talia began diving in late 2012 and immediately started photographing in 2013. Since then, diving has given her the opportunity to explore the world in the ways she had only imagined as a child. In a few short years, she has dived in Port Hardy, Hornby Island, Barkley Sound, Socorro, The Exumas, and of course, the Red Sea.

Talia's great love for ocean life is shared with underwater topography. She shoots exclusively with an OMD EM5 Mirrorless Camera with an 8mm Fisheye Lens. A challenge in these cold waters, this set up allows her to capture the unique perspectives her work embodies with the flexibility of a compact camera for her shore dives. Almost always shooting in RAW, Talia's images tell a story of graphic dramatism. Jumping in feet first, Talia follows no hard and fast rules, she goes with her gut, and is always surprised at the outcomes.

Follow Talia on instagram @coldwatergirl

Visit her website at www.underseasphotography.com









Olympus OMD EM5
8mm Fisheye, ISO 800, F8, 1/60





Featured Photographer: Santiago Gutierrez

Author Dan Clements and Santiago Gutierrez

Photo © S. Gutierrez
EXIF: 1/125, f/6.3, 16mm





Photo by Eiko Jones

Santiago was born and raised in Mexico City, and began the process of immigrating to Canada in 2011. He, his wife, and three sons live in Victoria, British Columbia.

He is well known in Mexico, where he was President of the Mexican Association of Underwater Photography (AMISUB) in 2010 and 2011. He was also coordinator of diving activities for Young President's Organization (YPO), Mexico City Chapter. He is starting to become better known in the Pacific Northwest through his work with Rockfish Divers out of Brentwood Bay on Vancouver Island and other outdoor marine activities.

Photo © S. Gutierrez

EXIF: 1/200, f/13, 105mm

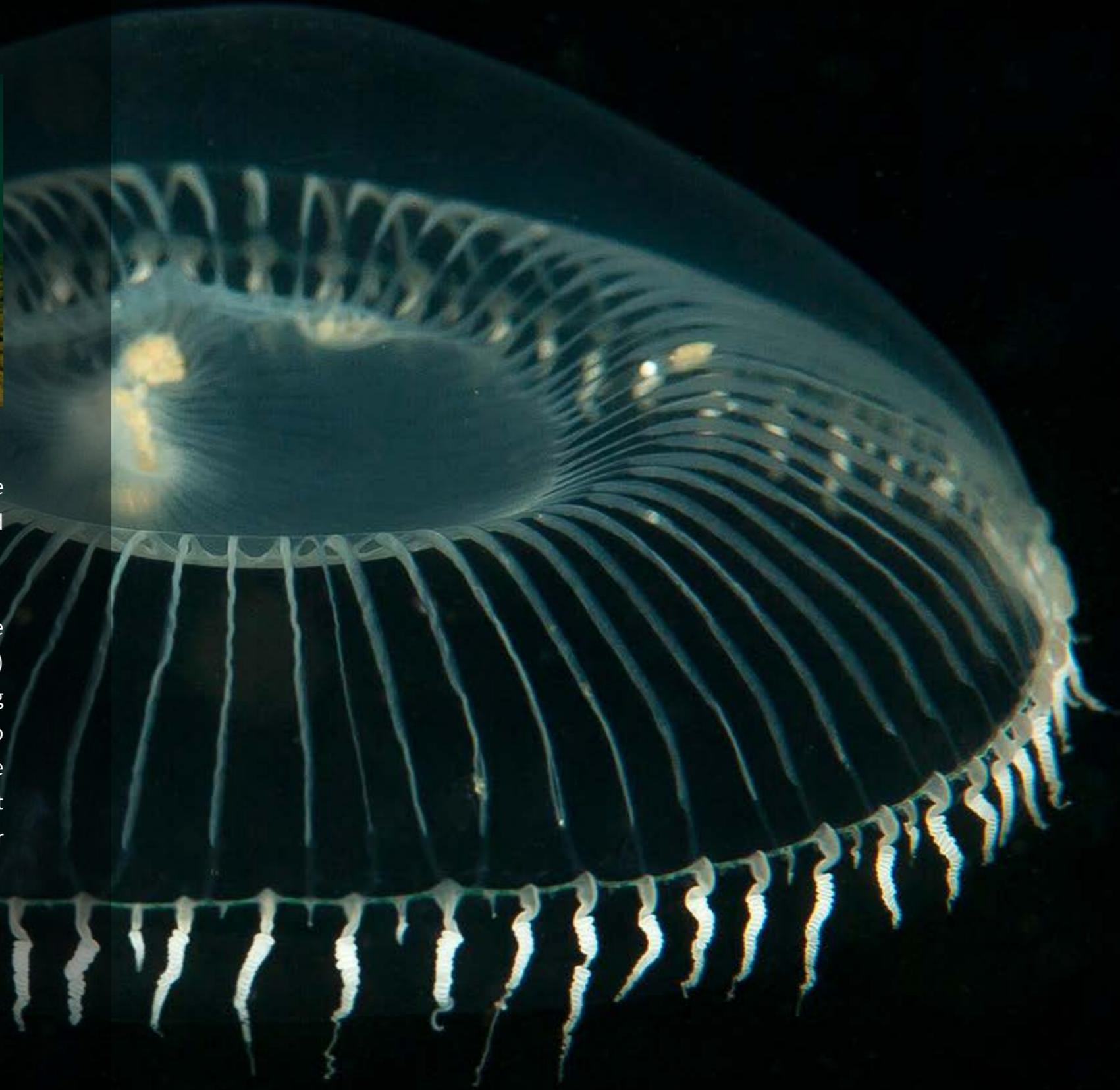




Photo © S. Gutierrez
EXIF: 1/100, f/6.3, 105mm

Diving Background

By way of diving background, Santiago was first certified in 1986, and progressed to a PADI Master Instructor certification. He is the Owner and founder of SEASPACE Dive Center with operations in Mexico City and Victoria BC. He has certified over 1,500 divers, and led trips to diverse locations as the Red Sea, Galapagos, Coiba, Malpelo and Cocos Island, not to mention his deep knowledge of the Mexico's coastlines in the Pacific, Gulf of Mexico & the Caribbean.

For those unfamiliar with diving in Mexico, the country offers one of the most diverse and challenging dive environments on the planet. There is everything from the relaxed tropical diving off Cozumel, to technical cave diving in the limestone cenotes on the Yucatán. There is high altitude volcano diving at over 12,000 feet, great white sharks of Guadalupe, sea mounts and high current dives in the Sea of Cortez. Santiago has a great deal of experience in a wide variety of conditions.

When asked about his favorite diving locales, he indicated that the Saanich Inlet, Race Rocks, and Campbell River area were among his local favorites. He looks forward to discovering more sites in the PNW and is aiming to dive the God's Pocket area in the near future.

The Passion to Educate

One of his passions is educating the general public about our marine environment, and our responsibility to help maintain healthy ocean ecosystems. He has used his SCUBA and underwater photography skills to create educational videos and photos to help educate the non-diving public.

To show how well Santiago is adapting to his new home, he recently made a presentation to the Gitga'at First Nation people. His presentation included high impact images of our underwater world, emphasizing the importance of conserving our waterways such as rivers, lakes and oceans. He supports their efforts against the oil tanker traffic at Kitimat and Hartley Bay.

He has shot and edited educational and commercial material for clients as Tequila Sauza, Telmex, Televisa and Renault. He has also contributed material for music video clips for various artists.





Equipment

For still photography, Santiago shoots a Nikon D700 FX in an Ikelite housing. His 'workhorse' lenses are a 16 mm for wide angle, and a 105 mm for macro. To round out the rig, he uses twin Ikelite 160S strobes, and 2 Sola 1200 focus lights and Ultralite arms.

For video, he chooses to mount a GoPro on his DSLR rig, as he feels the high definition GoPro product is good enough to document the photo shooting. For TV and major video production, he has used a commercial grade Arri 3 35mm film cinematography camera on Hydroflex housings.

For post processing, the platform of choice is a Mac with Bridge and Photoshop. For video processing he uses Final Cut Pro.

Photo © S. Gutierrez
EXIF: 1/100, f/9, 105mm



Photo © S. Gutierrez
EXIF: 1/250, f/7.1, 16mm

Words of Advice

Santiago offers three areas of advice for those wanting to improve their underwater photography skills: buoyancy, knowing your equipment and being prepared to immortalize the opportunities that nature offers.

Not only does poor buoyancy control impact a photographer's ability to keep still and in the same plane as the subject, it also damages the marine environment when divers auger into the bottom, or hold onto ledges and marine life to steady themselves.

He also suggests knowing the basics of photography and how to use the equipment you have to its fullest potential. His analogy: "An archer may have the best arrow and bow in the world, but if he does not know how to use it, he will always miss his shot!" Similarly, if photographers do not know how to use their equipment, they will take poor photos and videos over, and over, and over.

Nature offers rare opportunities to produce exceptional images that captivate the eye of the audience. In order to photograph them you should be sharp, intuitive, and possess a strong perception of what is going to happen. You should learn the behavior of your subjects, and maybe some day you can immortalize it with the perfect shot.

Email: sangutma@gmail.com

[Facebook](#) and [LinkedIn](#)



Photo © S. Gutierrez
EXIF: 1/125, f/6.3, 16mm



Photo © S. Gutierrez
EXIF: 1/100, f/7.1, 16mm



Photo © S. Gutierrez
EXIF: 1/125, f/8, 105mm

Creating Great Underwater Video

Part 2: Underwater Optics

For photographer and videographers, helpful information about lenses and ports

By Michael Meagher

In the prior edition of this series we introduced the underwater film-maker's mix and the areas of expertise you need to master in order to make great underwater videos. Last time we looked at the importance of core diving skills bring to the filmmaker. Although not the only factor to success, being a good diver will allow you to concentrate on the task of film-making.

Before moving into the topics of lighting, techniques, story telling and film-making we must first address the unique environmental challenges which will drive our lens, camera and lighting equipment considerations. There is so much to cover, so for now we will focus on underwater

optics and in later editions discuss the camera itself and lighting equipment.

Water Presents Some Problems

The terrestrial Director of Photography (DP) is lucky in that they can readily make use of established film-making equipment and methods. The DP can easily dictate the required lens for a particular shot, or change lenses in order to set up an establishing shot. They can vary the camera-to-subject distance in order to force the perspective, or blur the background, and so forth.

However, underwater we have constraints. We are limited by time, depth, narcosis, breathing gas limits, untrainable fish, lack of communications, surge and currents. But most of all, the water itself presents problems not experience by the topside director.

Regardless if you are diving in the gin-clear waters of Maui or in our beautiful green pea soup found locally, all underwater settings introduce the same common problems. Assuming that your goal is to obtain colorful, full contrast, crisp and sharp video of your subject there are several issues to consider.

Water Filters Away The Color Components of Light.

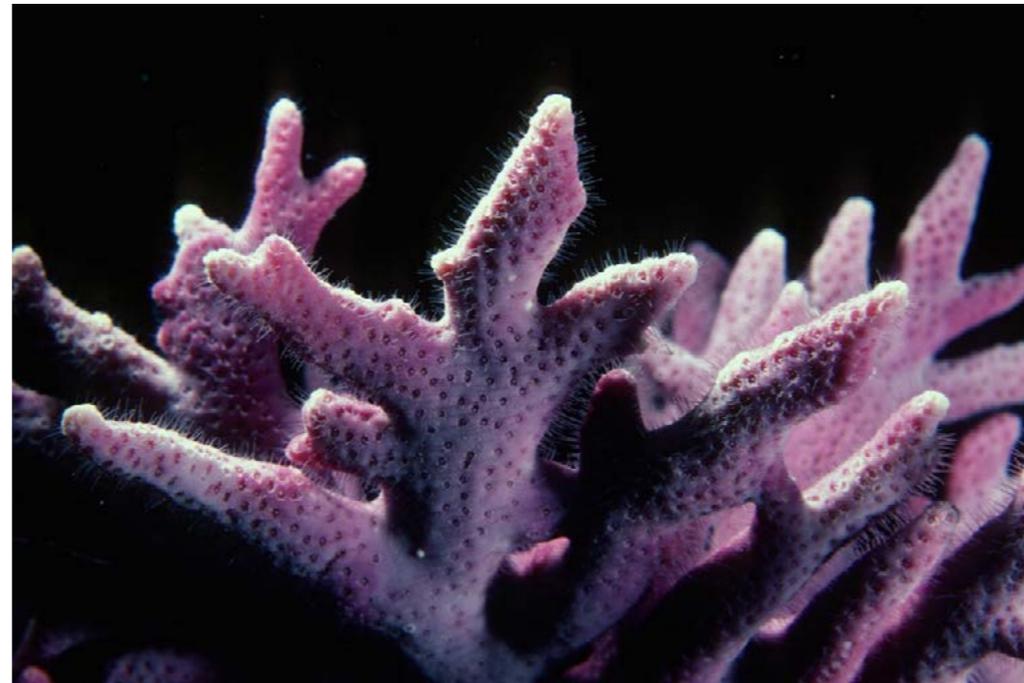
Water absorbs the color from the light. As sunlight penetrates the surface, it takes roughly 10-15 feet of depth for the Red wavelength of visible light to become significantly absorbed, followed next a few feet further by Orange, then the Yellows, Greens, until only the Blue, Indigo and Violet colors penetrate any distance. We divers all are aware of this fact and the easiest way to resolve this is by bringing with us to the bottom our own sunlight, in the form of a dive light. Problem solved.

However, not only does color absorption occur as depths increase regarding surface sunlight, the same color absorption occurs between our video light and the subject as distance increases horizontally. The light from the video light head travels out to the subject, reflects, and returns to the camera. It can travel only so far and Reds and Oranges begin to be absorbed. Try to illuminate a diver wearing a colorful BCD using a “standard” lens, which has about 65 degrees angle of coverage, and you will be required to back off to perhaps 8 or 10 feet from your subject in order to fill the frame. That means that the light from your video or strobe traveled 16-20 feet. Say good bye to the vivid colors.

The key to obtaining vivid colors underwater from your lighting equipment is to get closer to your subject, much more than you are used to in terrestrial film-making. This proximity reduces the amount of water between you and your subject making your images more vivid. I often try to keep subjects no more than three or four feet away for this very reason.

Water Causes Light Diffusion.

Water also diffuses the light passing through it. Subjects at a distance will look softer and have less contrast. In the clearest waters a subject more than about 12 feet away may be too far. The solution to reducing the diffusion image softening is to get closer to your subject. Water has suspended Particles.



Backscatter is that “snowstorm” look you get when your video lights reflect off of suspended particles. It will ruin the video. This is a problem not only in clear waters but is a huge problem in our local PNW area. Much of your lighting efforts and tricks will be focused around reducing backscatter and will be discussed in later articles. For now, simply remember that the simplest and most effective way to reduce backscatter is to move closer to your subject. Less water between your lens and subject means fewer particles to deal with.

Proper Video Light Exposure.

Your video lights are nowhere as intense as a still photographer’s flash. Strobes put out a very brief yet powerful light. The video light, however, needs to run continually and is generally not as intense. Obtaining proper exposure from video light is more difficult than flash and another reason to move in close to the subject. Closer in is more intense. Exposure on subjects more than 5 or 6 feet away will begin to fall off so much that the ambient lighting will overpower your video light. In our local green waters, on a bright summer day, the green ambient light can easily overpower video lights. In fact, the brighter the ambient light means the more intense your video lights must be. Getting close to your subjects and increasing the intensity of your video light will better balance with the ambient light causing the vivid colors to stand out.

Underwater Video Success Means Getting Closer.

So by now you should be seeing the theme: for underwater filming move in close to the subject much more than you would normally on land. You will get more vivid color from your lights. You will increase contrast and have sharper images. Your lights will have more intensity to overcome ambient sunlight color cast. In my practice, I try to keep subjects no more than four feet away, but often only two or three feet, and my lens choices is all centered around keeping this distance limitation in mind. To accomplish this you will need to make use of either extreme wide angle or close up lenses.

Macro Is A Good Start.

If you are just getting into underwater video, the quickest and least expensive path to immediate successful results is to kit up a close up rig – work on recording the smaller marine life. Mount one or more video lights on some arms, use a “normal” angle lens on your video camera, get close and you will capture some decent video.

If you desire to raise the bar on your image quality, then before sealing that fancy GH4 or Canon camcorder into a housing, consider screwing onto the lens a good quality close-up diopter, perhaps a +2, +4 or +5 power. The purpose of the diopter is that it reduces the minimum focus distance of your camera. This allows you to get closer without having to zoom your lens to a very narrow far away setting. Like reading glasses for the camera. For best results, install the diopter directly to the camera lens inside the housing. That however means that you will be dedicated to close-up filming during the dive, which isn't necessarily a bad thing.

If you are really serious about close-up diopters then consider a high quality achromatic close up lens. These are high quality lenses with two fused elements that provide much sharper images and have better color at the edges. They are not cheap but are certainly worth it.



When using a diopter, mount it to a standard or narrow field of view lens and use a flat port on your housing. The flat port underwater will narrow the Field of View (FOV) allowing you to better isolate the subject.

Wet Lenses Are Better Than None.

There are some “wet lens” close-up adapters on the market that you add to the exterior of your GoPro or larger housed camera port. These often have a hinged external element that swings into place while underwater. These lenses are generally added to a flat housing port, not domes. This system gets you closer to the subject and will improve your video, but optically speaking, a wet lens introduces water into the optics which may not be ideal. However, a wet close up lens gives you some choice and flexibility underwater.



Go Wide

If your goal is to keep subject distances limited to just a few feet away, then in order to capture a classic filmmaker's ‘establishing shot’, an extremely wide lens is required with over 100 degree span. That full diver shot requires

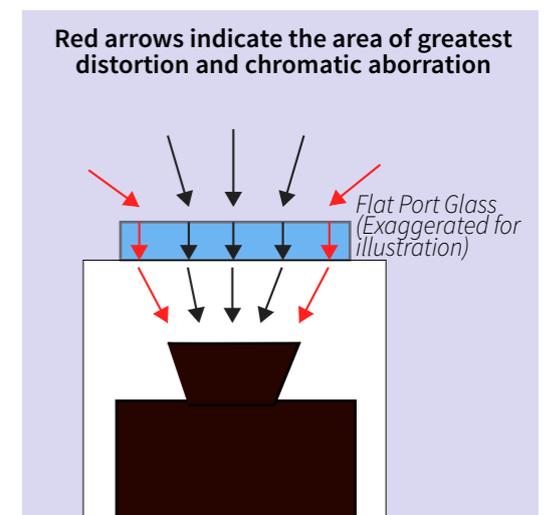
about a 90-95 degree coverage. A head and shoulder shot of a diver may require still a lens with around 85 degree coverage. For fish portraits or diver's face you may have to switch to narrower lens and perhaps with closer focusing capability. Wider lenses present issues with dealing with perspective distortion, but don't worry about that now we will cover that later when we discuss techniques.

Flat Port Problems with Wide Angle

Our eyes can only see clearly through air, not water and the same is true for our camera which is designed after the human eye. That's why we must put a mask on our face, to provide a pocket of air as we look through a flat glass port.

The simplest underwater housings, such as the GoPro housing come with a “flat” port. Larger housings do the same. A flat port is the simplest and least costly port for a housing and are ideal for a narrow lens or for close up work. Just like a diver's mask, subjects viewed thru a flat port appear approximately 33 percent narrower underwater than in air. Flat ports are fine for a lens with a FOV of around 40 to 60 degrees.

As you attempt to utilize a wider angle lens behind a flat port you will experience problems. The light from your subject passing through the water, then the port (glass or

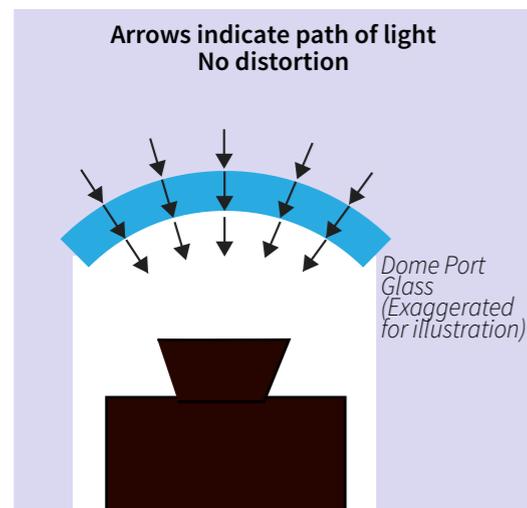


plastic) at the extreme wide angles, and finally the air in the housing, will end up getting refracted or “bent”. Its direction actually changes at the wider incident angles. The wider the lens FOV, the more extreme this refraction occurs. The light ray also gets “split” into its component color wavelengths and causes Chromatic Aberration (CA) – the splitting of the light into its component colors. This results in softer less sharp images with less contrast. The wider the lens behind a flat port, the worse the results.

Concentric Dome to the Rescue.

The most common solution for using a wide angle lens (65 degree and wider) is to mount it behind a Concentric Dome Port (CDP).

The CDP has been in use for a long time and gives great results. With the right radius dome, positioned right where the dome’s optical center is aligned on the lens’ internal “nodal point” (a point inside your lens where the image flips), an amazing thing happens: the lens will regain its full native in air field of view underwater. That 33 percent lost FOV coverage that was experienced using a flat port is now restored. Your wide angle lens is now wide again. CA is also greatly reduced and perhaps even eliminated.



Using a dome port allows the wide angle lens to obtain its full FOV potential, the image is significantly sharper, there is better contrast, and you get to



move in closer. If you are serious about filming wide angle you need to invest in a dome port or similar design.

How wide is enough?

I tend to discuss lenses coverage in angular degrees not focal length. Angle of coverage is really what’s important and today with all the various camera sensor sizes we no longer can discuss FOV only by a lens focal length. A lens of a certain focal length will obtain different areas of coverage depending on the sensor size. Every lens manufacture publishes their corner-to-corner field of view angles with certain sensors. Get into the habit of looking for that.

For me, my minimum angle of coverage for an underwater wide angle lens is about 84 degrees. To capture that fully suited diver, ideally I like 90 or 95 degrees angle of coverage but no less than mid 80s. When filming in gin clear waters the 84 degree range works but in our PNW waters, I often want wider so that I can move in closer and help make the water appear clearer.

Extreme fisheye lenses and less expensive lenses will have “barrel” distortion inherently built in. This is when subjects with straight lines appear curved. The GoPro’s lens

is such a lens, it is very wide, around 117 degrees, and has barrel distortion. But underwater, there are few straight lines so we can often live with this. Many underwater filmmakers use the popular GH4 and Panasonic 8mm lens. It too has some barrel distortion. This distortion is really a matter of taste. The Lumix 7-14 mm lens is a very sharp lens, a rectilinear lens that is designed to remove much of this distortion, but it costs more.

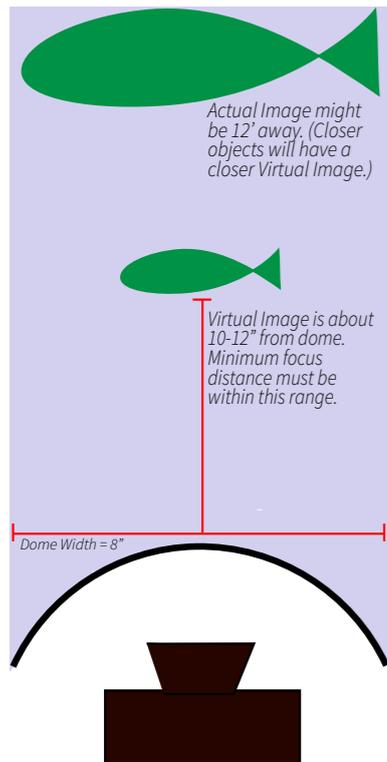
Perspective distortion is the distortion you get from having one subject really close to a lens and another subject further away. Wide angle shooters deal with this effect often. Forcing the perspective could get out of control, but then again you can make good use of it to add a dramatic look to your subject. There’s nothing wrong with perspective distortion and you will soon learn to make this work



to your advantage as we talk about techniques in a future article.

Take a look at my videos on [YouTube \(wolfeeldiver\)](#) to see some examples of local PNW dirty water video and various wide angle lenses. In most cases, people are often surprised to learn that most of the shots were taken just a few feet away.

The Dome Port's One Problem: The Virtual Image.



A funny thing happens when you put a curved dome in water – water on the outside, air and a camera lens on the inside. The interaction of these three mediums creates a “negative lens” effect. The dome port becomes a close up lens.

From inside the dome, everything underwater looks significantly closer. This apparent plane of focus is called a “Virtual Image” (VI)

. Every dome port creates a virtual image and the camera's lens must be able to focus on the VI which is just a few inches from the dome. The distance markings on your lens are no longer accurate and if your wide angle lens cannot focus closely close enough to resolve the VI the image will be out of focus. So not any lens can be coupled with a dome port.

There is complex optical math involved, but generally the larger the dome radius the further away the VI. A larger sized 8” dome may have a VI at about 10” to 12” away. A medium sized dome has a VI at 8” or so (see figure). A very small 4” dome will have a VI at just a few inches. *As a result, care must be taken to match a proper dome to the lens and spacers may be required to align the dome and lens centers.* Also, the smaller the dome radius the more curved the Virtual Image. Because your terrestrial designed camera lens is typically designed to focus on a flat plane, smaller domes with highly curved VI's might see some corner softening at wider apertures. Larger domes have a less curved VI resulting in a sharper image corner to corner.

Also, as your subject distance varies, so does the exact location of the VI. For example, a subject at 12' away may have a VI at 10”. But, when your subject is only 2' away your VI will be closer to perhaps 8”. This means you need the ability to fine tune the focus. You also need a dome that will be large enough so that the corners of your image are not cut off.



There is a lot to consider when buying a dome port... the underwater camera housing sales people are there for this reason.

So What About the GoPro?

The GoPro is a different story. It's a great little action video camera that can make some great video. It does have some limitations. Its built in fixed-focus lens is optimized to be sharp on subjects about 12” or more away, in air. It also has an extremely wide FOV, around 117 degrees, and has some barrel distortion. But, it is small, low priced and in bright light takes decent video.

When the GoPro is housed behind its flat port housing the optical limits of refraction and CA can be observed. Luckily, there's one housing manufacturer (DeepPro Systems) that has successfully housed a GoPro behind a concentric dome port with some amazing results. Because of the dome's VI, to make this work they installed a close up diopter inside the dome chamber which gives the camera 'reading glasses' so that the VI is sharply resolved.

Wet Mount Wide Angle Lens.

Some wide angle wet mount adapters can be mounted to the housing port underwater – they simply made the stock lens cover wider. These types of lenses are an option when keeping costs low is the driving factor. Any method you can use to shoot wider is better but remember a wet lens solution is generally optically inferior than a dedicated dome port or related system.

Specialized Wide Angle Ports.

Some higher-end housing manufacturers offer specialized ports, such as the Fathom brand. These are very high quality optical ports optimized for underwater use. They

were initially designed to make a camcorder with a built in and narrow FOV lens, obtain wider coverage. I have one of these lenses on my Gates housing for my Sony and I love it. These ports can be very optically sharp, but because they are made of multiple coated glass elements they are often heavy, negatively buoyant and are expensive. Lately, the trend for higher-end rigs seem to be the use of a camera featuring an interchangeable lens mounted behind a CDP. These specialized ports are becoming less and less popular due to their cost, size and weight.

Glass vs Plastic.

Like many things in life you get what you pay for. As a rule of thumb, glass ports will have better optical quality, can be coated with Anti-Reflective (AR) coatings which will help reduce any internal camera reflections. Glass is generally optically superior than a molded Lexan port, but cost more.

AR coating is beneficial on the interior of a dome to reduce reflections, however AR coating on the exterior of the port is debatable. If it gets scratched, you will see a black spot in your image, and the repair can be expensive. Plastic domes can be cheaply replaced or polished in the field. Glass domes usually have to be sent to the manufacturer for a scratch repair.

Black Out The Housing.

When mounting cameras, lenses, or installing filters inside a housing that has a dome port be sure to use black tape, flat black ink, even a black pen to paint over any lettering, or reflective or bright surfaces. This only becomes

an issue when you point your camera towards the surface. Then the sunlight will illuminate the hardware inside your housing and you'll see that hardware reflected on the dome in your images. All higher end ports and housings take care to "black out" the camera and hardware for this purpose. Avoid buying a housing that has bright interior color. You're just asking for trouble in this area.

In the next edition we will discuss the video camera. We'll talk about sensor sizes, shutter types, white balance, Cinema and Video Cameras, video Codecs, recording Media speed and some important controls to have in your housing and why you want them. And we will discuss housing features to consider when shopping such as construction, materials, buoyancy, accessories, size, stability and more.

Until next time...



Sponges

During the months of May and June we are looking for various sponges.

Written by Kerry Enns

© Kerry Enns at Port Hardy

EIXF: Sony NEX5N, 16mm, f/2.8, 1/160, ISO200

In an effort to learn more about the creatures that we enjoy photographing, this section “Where The Wild Things Are” will showcase 5 or 6 different plants or animals. In conjunction with Donna Gibbs from the Vancouver Aquarium, we will analyze charts of different animal categories found in the Strait of Georgia to determine what has been the most plentiful, historically. It is the magazine’s hope that you will draw inspiration from this information and find your own sample images. I will try to be as accurate as possible with the information found for each, and apologize in advance for any conflicting information.

This edition I am focusing on sponges. We see them often, but do we really take notice of them? We have the famous cloud sponges when we go deeper and of course we love looking in the nooks and crannies for all the other wonderful critters hiding in them. There are also boot sponges commonly found on rock walls at the deeper recreational depths. But the sponges we are featuring in this issue are the less commonly known ones. May and June should be good months to find them. So tuck these images into your memory and go for a hunt.

We’d like to see what you found. Post in on the magazine’s [Facebook](#) page and tell us where you found it.



©Kerry Enns at Kelvin Grove
EXIF:Nikon D7100, 105mm, f/18, 1/250, ISO100

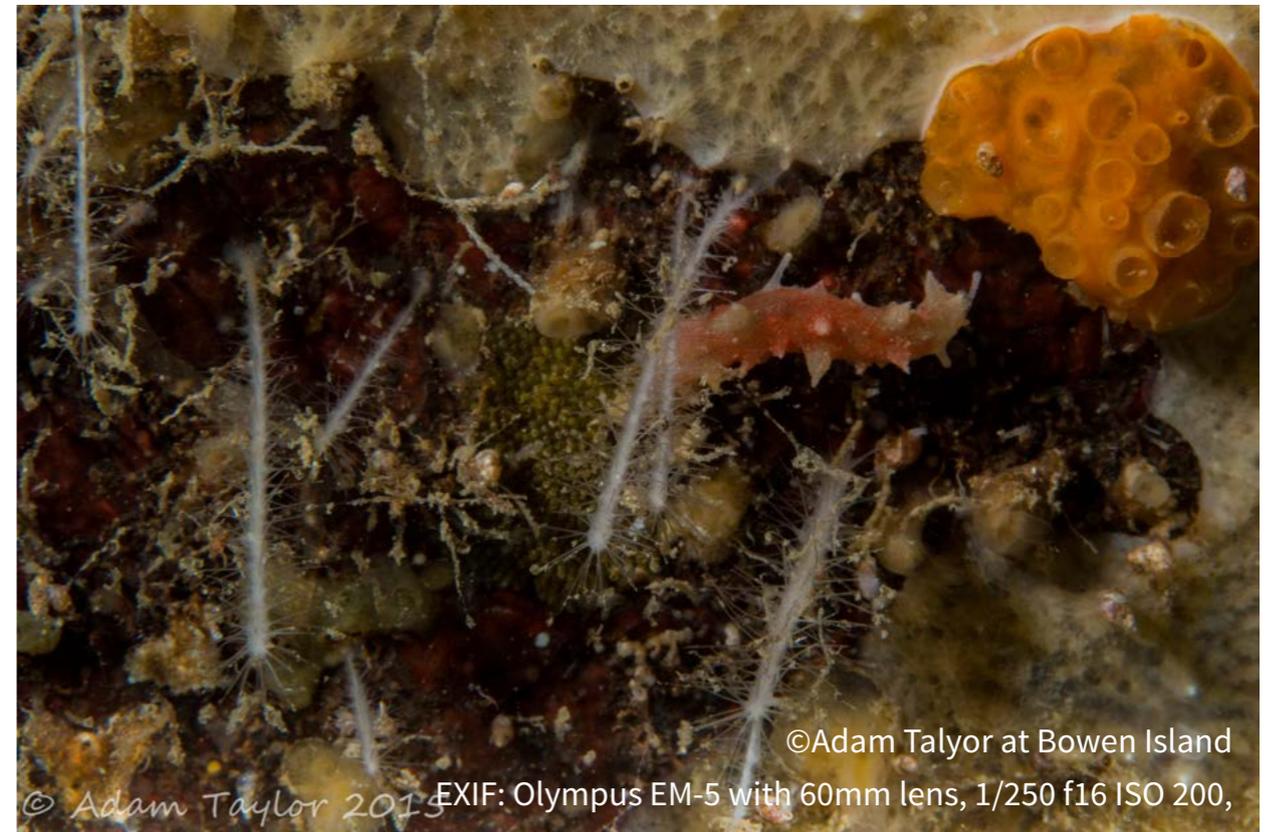
Yellow Boring Sponge

(*Cliona californiana*)

One of the species is known as the Sulfur sponge. It can be found anywhere within and beyond recreational depths. It grows on disintegrating shells, like scallops shells, and barnacle housings. They are tiny discs, perhaps the size of a pea, that protrude from even tinier holes. It would be interesting to note, while you are there, what feeds on it. In my on-line search, I spotted a couple of photos where the sea lemon or dirona nudibranch was on top of the sponge mass. Let us know where you find it and if anything is calling it 'lunch'. For a good close-up image of these, a 60-105mm macro lens will be best. Try adding a diopter to get the individual yellow discs.

Some general information about Sponges:

Sponges are an interesting critter...yes, critter. Their cells function independently whilst functioning as a unit to filter water. This is how they feed. This complex system has pores, canals and chambers which is held together with a framework of fibers and glass or chalk-like slivers. According to Andy Lamb, the identification of sponges is "a problematic and frustrating subject for a naturalist. Indeed, academic professionals who spend their careers studying the group are likewise challenged." (p60, Lamb 2005) He continues to say that correctly identifying them is a "work in progress." There are at least 260 varieties in our waters.



©Adam Talyor at Bowen Island
EXIF: Olympus EM-5 with 60mm lens, 1/250 f16 ISO 200,
© Adam Taylor 2015

Pipecleaner Sponge

(*Asbestopluma occidentalis*)

This is a very unique little sponge in that it doesn't look like a sponge, it looks like its common name, a white pipecleaner. Instead of the more common water filtration method among sponges for feeding, it uses tiny hook-like fibers that trap minute animals. Because of its size, up to only 1 inch tall, this will be a challenge to find. Jackson Chu shows an interesting video ([shown here](#)) of someone collecting specimens. He asserts that they are abundant in BC but are difficult to spot. Adam Taylor, a local diver, has noticed that many sponges are found at shallower depths in the Howe Sound as opposed to other areas, such as the Saanich Inlet. These ones were found at 50' at Mt. Gardner Dock. If you are looking to photograph it, take along your macro lens and even your diopter. You'll need it.



Orange Cratered Encrusting Sponge

(*Hamigera* sp.)

Again, as the name describes, this sponge is orange and spreads out fairly flat with lots of craters. It might take up an area about the size of your hand spread out. There isn't much information about it, but Andy Lamb, in his book, suggests that Tara's Dorid (a small white dorid) are found on this sponge. A look through various images online seems to suggest that these are found in low to moderate current and is common in the Howe Sound. It would be interesting to note what sites these are found in. Do let us know!

Depending on your goal, a 60mm macro lens might be best for capturing the intricate details of the sponge or a variable lens (like my 17-70mm) for capturing the entirety of the sponge.



White Reticulated Sponge

(*lophon lamella*)

Also known as the lophon Sponge, this sponge has branches that reach upwards. Found at recreational diving depths, they can be a couple feet across and about a foot high. Sources are conflicting on the size. They seem to prefer rock surfaces in currents. Rick Harbo (Harbo 1999), in his book, comments that its prey is the Wrinkled Star. He also mentions that there are several lophon species, so identification might be challenging.

You will want a wide angle lens for this one. If you are stuck with the macro, then perhaps looking for something interesting that lurks within it might be fun. If you find something, post it for us to see.



Funnel Sponge

(*Semisuberites cribrosa*)

The Funnel Sponge and Stalked Trumpet Sponge, listed separately in Andy Lamb's hard-cover book, is now combined into one species on his online version. It seems to prefer areas where the currents are higher and can grow about a foot long. The Noble Sea Lemon is a common predator, which can cause the sponge to grow in a deformed manner. Like the Funnel Sponge, it will grow up to a foot or so. This one was taken at Whytecliff. Use a mid-range lens for this one. If you've got a wide angle or fish-eye, then put a diver in the background, illuminating this pretty sponge in the foreground for an interesting shot.



ORANGE FINGER SPONGE

(*Amphilectus rigida*)

The Orange Finger Sponge is only about a hand's span tall and can have several tubes, like the one shown here, or it can be just a single tube. As you can see, the leopard Dorid can be found eating it. According to Danny Kent, curator of BC Waters at the Vancouver Aquarium some fish species will lay their eggs on the inside of the tubes. A medium lens should do it for this sponge, or a zoom lens. Carefully not to overdo the power on the strobes as oranges can be quite harsh. I had to adjust the color on this image so that the orange wasn't so intense.

Sources:

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Sept, Duane J. 2008. *Common Seashore Creatures of the Pacific Northwest*. Sechelt, BC: Calypso Publishing.

Chu, Jackson. <https://vimeo.com/55404915>

Your Lens. Your Story.

Your turn to shine. We would encourage you to submit your photo and story in the next issue.

This is our readers' turn to shine and to show what they have learned or experienced. The last two issues we have featured a number of images and stories that have been most enjoyable. However, the submissions have been scant this time around. I'm not sure why.

I would like to encourage readers to participate in this section of the magazine. Think of it like a Facebook page. Many people post their images and stories on Facebook or Instagram. They don't need to be stellar images, but together with a story, they are wonderful. Don't be shy.

This issues we only had two submissions. I hope you enjoy them as much as I did.

You may submit your images to the [editor](#). Send us your image in jpg and your story in any format you like. If possible, give us some of your camera details. If you don't know how to do that, don't sweat it. Send them anyway.



Phil Garner

I watched this little Scalyhead sculpin (*Arteidius harringtoni*) bounce between sponges and anemones seemingly trying to avoid my camera. Each time I got him in focus he would dart away. I spent so much time waiting for the perfect pose that I had to glance at my SPG a few times to ensure that I would not have to make an out of air ascent. I wondered if I would get a shot or have to ascend Northwest Passage Wall empty handed. Finally he settled in an open area long enough to frame my shot. I looked in my viewfinder, saw that his eye was in focus and slowly began to depress the shutter. A split second before my strobes fired he suddenly lifted off the rock and paused just long enough to capture the shot. I remained for several more minutes hoping to get another image but his gymnastics were done for the day.

Nikon D700, f11, 1/250, 60mm, ISO 100 Dual Ikelite DS 160 strobes

Diane Reid

Vancouver, BC

Easter Monday 2015 the dive site was Fantasy Island, near God's Pocket Resort. Surface conditions were perfect: warm sunshine and calm seas. Conditions below the surface had outstanding visibility measuring 20+ meters and bright.

The resident Wolf Eel I was going to visit was out of his den for a swim and I followed him. As he crested a ledge, a Giant Pacific Octopus reared up and instantly mimicked the white plumose anemones that blanketed the rock. I changed my focus and began to photograph the GPO. He was charismatic and posed for the large shiny domed monster with long arms and bright lights that flashed at his every move. The Wolf Eel had returned to his den so I finned over to capture a few head shots. Looking up I could see the GPO advancing toward the den.

The GPO colouring was red on top while the lower body was white. The arms reached down and framed the Wolf Eel head then he completely enveloped the den entrance with his mantle and turned a deep shade of red. Suddenly the Wolf Eel's head popped out alongside the GPO. There was time to get a few photos before the octopus slowly went on his way.

The encounter could have been accidental as there was no sign of aggression. Or the GPO may have been checking the den for a vacancy.

EXIF Data: D7000, 20mm, 1/125sec, f/8, ISO100



Share the Shore with Harbor Seal Pups

A Public Service Announcement from NOAA Fisheries

Image by Diane Reid



The NOAA (National Oceanic and Atmospheric Administration – U.S. Department of Commerce) released the following text on April 15, 2015.

The West Coast Marine Mammal Stranding Network encourages you to “Share the Shore” with harbor seal pups. Pups are born on the outer coast of Washington in May through July. In our inland waters pups are born in the north (San Juan Islands, Bellingham, Whidbey and Camano Islands) in June through August. In south Puget Sound pups are born in late June through September. Harbor seal pupping in Hood Canal takes place in August through October. There are 3,000-5,000 harbor seal pups born in Washington inland waters each year. Under the Marine Mammal Protection Act harbor seal populations have recovered to healthy numbers. The harbor seal population is at carrying capacity (maximum population size of the species that the environment can sustain indefinitely).

Nursing pups remain with their mothers for 4 to 6 weeks and are then weaned to forage and survive on their own. Harbor seal pups may haulout in the same place for several days or weeks at a time; this does not mean they are abandoned. Pups that are being weaned must learn to survive and forage for food. Weaned pups will spend extended hours on shore resting and regulating their body temperature. Please respect nature’s role. Up to 50% of the pups born will not survive their first year of life.

Many harbor seal pups are too young to have developed protective wariness (escape response) and may not flee when approached while resting and warming up on shore. Harbor seals use log booms, docks, and shoreline habitat on a daily basis to rest and regulate their body temperature. Please Share the Shore- stay back 100 yards if possible, keep your dogs on a leash, and if the animal is injured call our hotline at 1-866-767-6114.

Harbor seals (and all marine mammals) are protected by law under the Marine Mammal Protection Act. Federal marine mammal regulations prohibit harassing seals to reduce human disturbance of important life processes. Don’t Touch Seal Pups! The best thing you can do is to leave the animal alone – it’s best chance for survival is in the wild.

For more information about harbor seal pups in Washington State please read the Share the Shore with Harbor Seal Pups, Frequently Asked Question document distributed with this PSA or visit our website at: http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/pinnipeds/index.html

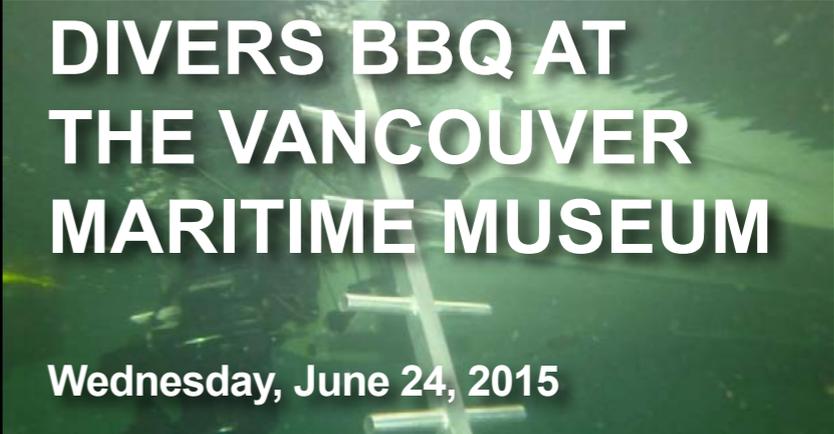
Point of Contact for Media Inquiries: Jim Milbury, 562-980-4006, Jim.Milbury@noaa.gov or Michael Milstein, 503-231-6268, Michael.Milstein@noaa.gov

Image by Kerry Enns (Monterey, CA)

UASBC: Divers BBQ at Vancouver Maritime

If you like history, then The Underwater Archaeological Society of British Columbia (UASBC) has several events that you might consider attending. "The UASBC is a group of avocational archaeologists, historians and shipwreckwreck divers dedicated to researching, locating, identifying, surveying, and protecting the maritime heritage of the province of BC, Canada. The UASBC is committed to this task for the interest, education and benefit of all British Columbians."

Information based on Website at www.uasbc.com



DIVERS BBQ AT THE VANCOUVER MARITIME MUSEUM

Wednesday, June 24, 2015

Wednesday, June 24, 2015 - 18:00 - 22:00

All dive clubs and non-commercial diving organizations in BC have been invited to put out a display on their activities and to give a short (5 min) oral presentation.

The UASBC will supply a bbq, hot dogs and buns; tables for the displays; and a no-host bar with craft beer. Clubs can bring other food to cook on the bbq.

A great opportunity to socialize with other divers; learn about diving opportunities and network.

Vancouver Maritime Museum 1905 Ogden Ave
Vancouver, BC V6J 1A2
Canada

Migrating Catalogues to Lightroom v6.0

By Dan Clements

With version 6 of Lightroom due out soon, users will be faced with up-dating their catalogs. Remember that Lightroom catalogs are a data base that stores information about where your individual photos are located, instructions regarding how you want your photo edited, and meta-data information.

If the catalogue becomes lost or corrupted, you will lose all editing you have performed in Lightroom. Sean Duggan provided some great tips in the March issue of Photoshop User about managing catalogs with the new Lightroom update. The excerpt below is taken from 'Photoshop User Tips & Tricks' by Sean Duggan – March, 2015

Stick with the new catalog file after upgrading

With a new version of Lightroom coming soon, these two tips will help ensure that your transition to a new Lightroom catalog is a smooth process. When you upgrade to a new version of Lightroom, the program needs to convert your previous image catalog so it can work in the new version of the software. To do this it makes a copy of the catalog and updates it, leaving the previous version alone. If necessary, you can always return to that version and open it in the old-

er version of Lightroom. To keep things clean and well organized, I strongly advise against that because it could cause a situation where there are updates to the older catalog but not the newer catalog. In fact, after you've upgraded and the catalog is running consider moving the older catalogs to an appropriately named folder to keep them separate. Eventually, you can get rid of the old catalog files.

Rename the catalog after upgrading

The name of the updated catalog will depend on what the previous name was. If your older catalog was named Lightroom 5 Catalog.lrcat, the new one will be called Lightroom 6 Catalog.lrcat. If you've used a custom name (e.g., My LR5 Catalog.lrcat), the new catalog will have a "-2" appended to the old file name (My LR5 Catalog-2.lrcat). To make it clear that my current catalog has a distinct name, I typically rename it (when Lightroom is not running) to something else, such as LR6 Main Catalog.lrcat. When you do this make sure that you also rename the pre-views file and the smart previews file (if one exists), using the same naming format. For the previous example, the previews file would be renamed to LR6 Main Catalog Previews.lrdata. To find the catalog, preview, and smart preview files, navigate to [username]/Pictures/Lightroom (PC: Computer\Disk C:\



Users\[username]\My Pictures\Lightroom).

Set the preferences to open a specific catalog

By default, the preferences are set to open the most recent catalog when you launch Lightroom. In some cases this can cause confusion. In the General section of the preferences (Lightroom [PC: Edit]>Preferences>General), I like to set this to always open my main catalog. Your own workflow needs may vary, of course, but I find it's better to have consistent behavior in terms of what catalog is opened when I start Lightroom. If I need to access a different catalog, I can always do so.

Choose different catalogs at launch

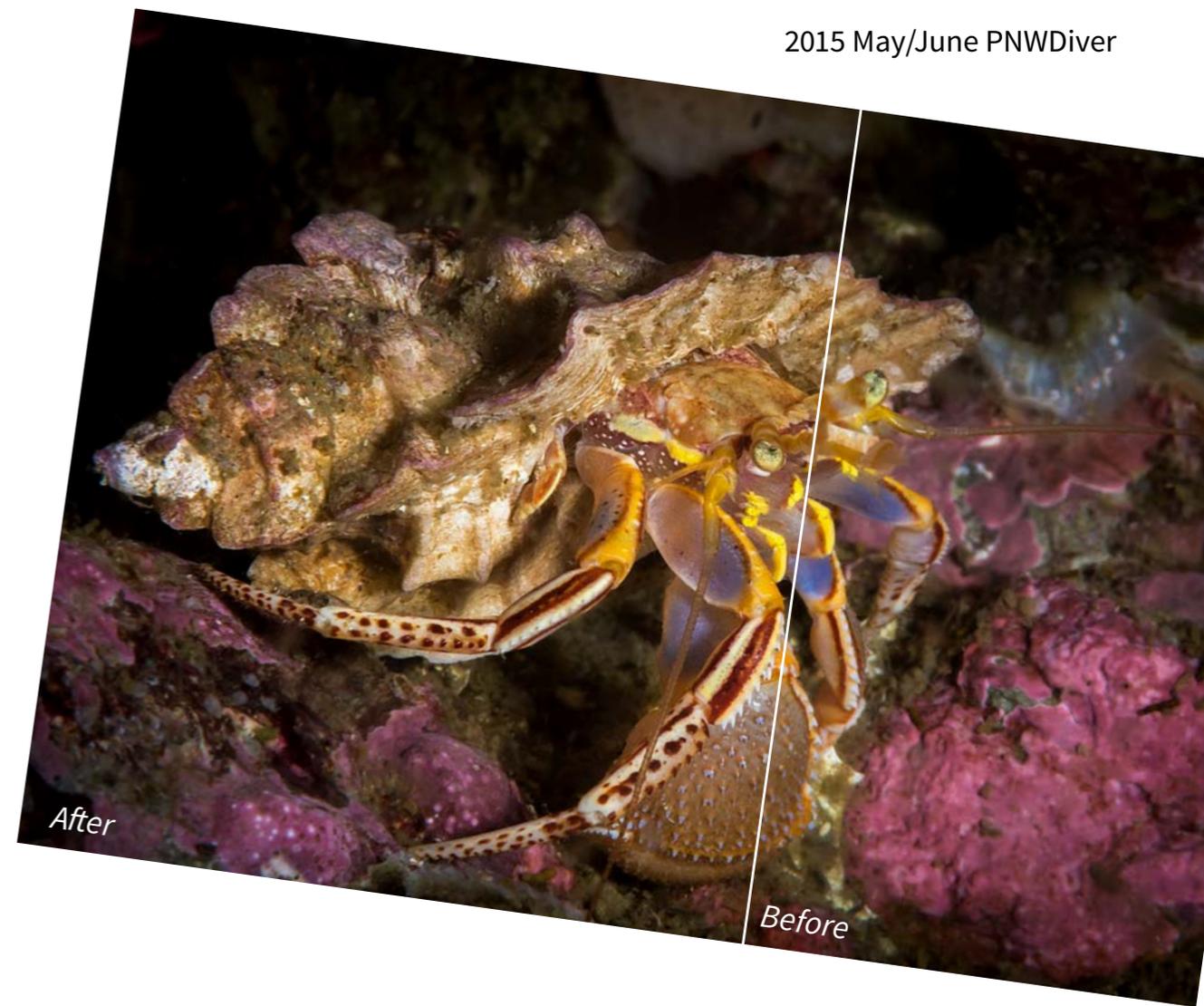
If you'd like to choose a different catalog before launching Lightroom, press-and-hold the Option (PC: Alt) key when you launch the program. In the dialog that appears, select the catalog, and click Open.

Editor's Note:

Lightroom and Photoshop are available at adobe.com for \$9.99US/month.

Sharpening Tricks for Photoshop & Lightroom

By Kerry Enns



In the previous two issues of the magazine, I talked about workflow and post-processing images in Lightroom. The last task when post-processing images is to sharpen. This is extremely important in underwater images since so much sharpness is lost due to the density of the water.

What sharpening does is make edges in the image pop. In other words, sharpening makes the darks darker and the lights lighter. Sadly, if there is noise in the image, sharpening will amplify that noise, so caution is necessary. More on this later.

What sharpening doesn't do, however, is recover details lost because of a blurry picture. The blurry license plate on a TV crime show that is miraculously made clear is not going to

happen. It just makes the details that you have, stand out. Unless you have an image that is soft on purpose, every image should be sharpened.

In my quest for the 'perfect' method of sharpening, I have come to realize that there isn't one. These are several methods that I've come across. Perhaps you already use one of them, but if you've got some time to play, give one or two a try.

Please note that all of these techniques and plug-ins are available for both Mac and PC. Alt in PC is the same key as Option in Mac.

Lightroom Sharpening

The first line of attack will be in Adobe Lightroom or in Photoshop's Camera Raw: they are virtually the same. In the Develop module, the sharpening is done in the Details menu on the right side. It does the same thing as Photoshop's *Unsharp Mask* but gives you more choices which are available on sliders: *Amount*, *Radius*, *Detail*, and *Masking*.

The *Amount* slider will adjust how much sharpening you want to apply. Remember, the more sharpening, the more noise you will get. Also, sliding the *Amount* too far to the right can cause banding or fringing, that telltale edge glow. So be careful.

The **Radius** slider will adjust how many pixels will be affected. The larger the radius, the more shadowy effect you will get. Small hairs will need a tiny radius. It is best to keep this at 1.0 or less. In general, the smaller the radius, the bigger you can go on the 'Amount' adjustment.

The **Detail** slider controls the details. 0 will affect the large edges and 100 will affect the smallest edges. Try to stay less than 50 on this or the noise might get out of hand.

The **Masking** is my favorite slider. This one serves as a mask so that beautiful bokeh you achieved, that soft blurred background, are not sharpened. A handy trick is to press the 'Option' or 'Alt' key while adjusting this mask. It will show you exactly what you are masking out. The black areas will be left untouched by the sharpening tool. It's awesome!

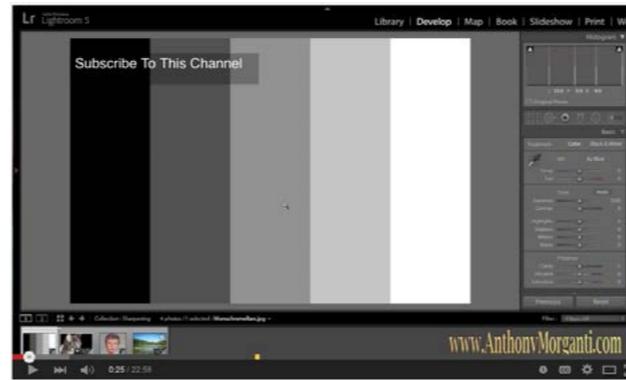
Note: When exporting there is an option to further sharpen. Only use this if the image is being exported smaller than the original.



Before/after LR Sharpening with Masking. Only the sculpin is sharpened, not the background.

If you have increased ISO on your camera in order to allow your camera to capture as much light as possible, then you will likely experience some graininess in your image. This is called noise. You will also experience this noise in the shadows of an image or in an underexposed image. After expanding the view to 100%, adjust the **Color** slider, the larger the number the more colors that it will blend. The default is 25. The **Detail** slider will add detail from the color blending. Now go up to the **Luminance** slider and start moving it to the right and you will see the graininess start to disappear.

Anthony Morganti does an excellent job of explaining the **Detail** function in his [YouTube video](#).



Learn Lightroom 5: Sharpening & Noise Reduction Tutorial

Unsharp Mask or Smart Sharpening in Photoshop

Unsharp Mask is the go-to sharpening tool in Photoshop. This tool is similar to the Lightroom Sharpening as explained above. When you open up the filter, you will need to make adjustments on the three sliders: **Amount**, **Radius** and **Threshold**. Adjust the **Amount** to increase the sharpness. Adjust the **Radius** as explained above. The **Threshold** slider's Lightroom equivalent is **Detail**. Masking will need to be done by creating a mask after the sharpening is complete. Helen Bradley in her post "[How to](#)

[Sharpen Photos: An Introduction](#)" shows how to do this. Some editors use this process only for output sharpening, preferring other methods for the actual editing process.

High Pass Filter in Photoshop

The idea with **High Pass** filter is that it turns the image into a neutral grey image. Use the **Linear Light** or **Soft Light** and that range of 'Light' blend modes. What will happen is that any grey lighter than 50% will cause the image to be lighter and anything darker than 50% will be darker. So when the screen is shown in neutral grey as in the image below, it is easy to see where the sharpening is going to take place. So, the benefit of using **High Pass** filter is that the sharpening is limited to the selected area, much like the **Masking** slider in Lightroom.



High Pass filter before applying blend mode

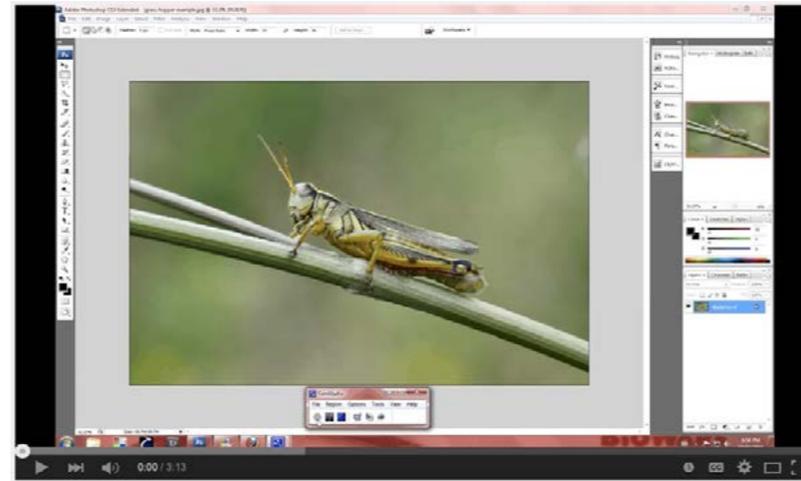
Once you are finished with healing/cloning and are ready for this filter, create a duplicate layer (Command J) then convert it into a **Smart Object**. From there, under the **Filter** menu, scroll down to **Other** then **High Pass**. Adjust the radius so that the edges are visible but without any color or edge glow.

Desaturate (Image -> Adjustments) the image taking out any color. When you are finished, in the **Layers Palette (Windows menu)**, choose any of the blend modes in the **Overlay** section: **Overlay, Soft Light, Linear Light**, etc. You can adjust the amount of this effect using the opacity slider found to the right of the **Blend Mode** menu. Another option is to apply the Blend Mode before applying the **High Pass** filter. That way you can see which radius is best.

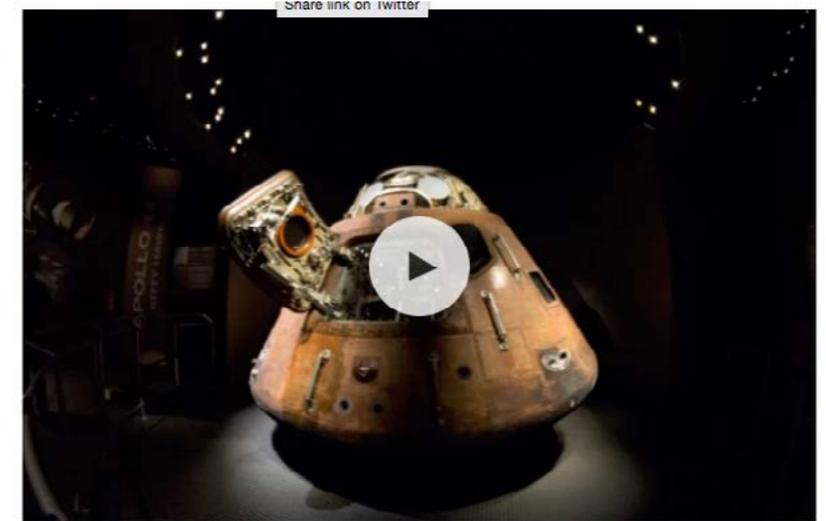
Further options include doing several layers of High Pass filters with various radii and blend modes then mask out areas. My explanation is very brief but Michael Woloszynowicz does an amazing job of explaining **High Pass** filter in [this video](#).

If I'm already in Photoshop to clean up backscatter and such, this is my preferred method of sharpening.

again by hitting 'Command F' to give it extra crispness. Go back to RGB mode. Harold Davis, in his article "Sharpening in LAB Color" gives a step by step process. I won't go into detail on this one here. Alternately, check out this short, but helpful, [video](#). If you prefer a step-by-step tutorial, then click here to go to photo.net's article "[Sharpening in LAB color](#)".



I recommend spending some time trying each of these methods out. I learned so much about the workings of Photoshop by going through these processes. Good luck and happy editing.



Gabriel Fontez Video from Topaz Labs

Topaz DeNoise and Topaz Detail

The people at Topaz have made several plug-ins, but the two that might be helpful are **DeNoise** and **Detail**. [This video by JP Denko](#) from DIY Photography goes through his workflow from Lightroom and to Photoshop with these plug-ins. Although it may be possible to do sharpening without them, this artist feels it saves him a lot of time.

Gabriel Fontez, from Topaz Labs, [created a video](#) where he is able to rescue detail in the image without increasing noise, by using Topaz DeNoise and Photoshop. This is an excellent video in which he uses several images to explain the process. Since they are not underwater images, you will need to make some adjustment.



LAB Color Sharpening in Photoshop

This method is an excellent method for applying sharpening to specific areas of the image. Another benefit of using this method is that it avoids color halos because, in essence, you are sharpening the black and white image. Briefly, convert the image from **RGB** to **LAB**(Black and White), select the 'L' or **Lightness** Channel and apply **Unsharp Mask**. Do this

Sources:

Learn Lightroom 5 - Part 5: Sharpening & Noise Reduction.

<https://www.youtube.com/watch?v=imYJccSKx3E>

How to Sharpen Photos: An Introduction.

<http://digital-photography-school.com/an-introduction-to-sharpening-photos/>

Mastering Sharpening in Photoshop.

<http://www.vibrantshot.com/mastering-image-sharpening-in-photoshop/>

Photoshop LAB Color Sharpening.

<https://www.youtube.com/watch?v=fv8zBAS5MBE>

Sharpening in LAB Color.

<http://photo.net/learn/digital-photography-workflow/advanced-photoshop-tutorials/sharpening-in-lab-color/>

An Image Sharpening Trick You Must Try.

<http://blog.topazlabs.com/tutorials/image-sharpening-trick/>

Travel Corner

Five amazing trips to consider.

Photo by Talia Cohen



Barkley Sound Shark Week

August 17-21, 2015

August 21-25, 2015

Trip estimate is \$940CAN/person

This will be the fifth year for Shark Week at Rendezvous Lodge on Barkley Sound. Four days of diving. Prices include pick up/drop off in Port Alberni (for 6-10 people), accommodation, 2-3 dives/day, air, cylinders and weights, meals (except pick up day), coffee/tea, and use of the facilities (kayaks/hot tub/etc). Dr. Chris Harvey Clark will return as the shark biologist. Price includes transportation to and from Port Alberni, meals, lodging, and air fills. An excellent video describing Shark Week may be viewed by following [this link](#). Get more info [here](#).

Objectives: Six gill sharks, rays and dogfish.

Contact: Peter Mieras at 877.777.9994,

or [email info@rendezvousdiving.com](mailto:info@rendezvousdiving.com)



Eastern Mediterranean

Dates/Cost: TBA

After a business class flight from Seattle, we rendezvous in Amman, Jordan, for a visit to Jerash and Petra. We then board our charter in Aqaba, with planned stops in Egypt, Cyprus, Antalya and Kusadasi in Turkey, Rhodos, Delos, Mykenos, Santorini, and Athens, Greece. We finish up in Istanbul with a quick trip to Cappadocia before flying home. This is a combined visit to sites of historical interest with exploring the Eastern Mediterranean's underwater world. This trip is currently sold out, but there is a wait list in the event of cancellations.

Objectives: Antiquities photography, Eastern Mediterranean marine life.
Contact [Dan Clements](#) for details.



Campbell River Area Salmon River and Salt Water Diving

September 6-12, 2015

Trip estimate \$1,400US/Person

This year we will return to Vancouver Island in September. Spend several days in the Gold, Nimkish, and Campbell Rivers photographing salmon and wide angle with Eiko Jones. Then spend the next few days diving around Quadra Island. The exact itinerary will depend on river water levels and fish migration. We will stay at Taku Lodge on Quadra Island. Costs include lodging, two days river diving with lunch, four days of two tank diving with Abyssal.

Objectives:

Salmon, wide-angle river canyon, sea lion, Salish Sea marine life.

Contact [Dan Clements](#) for details.

Lembeh Strait

Oct 30-Nov 11, 2015 at NAD-Lembeh,
(Oct 28-Nov 12th including flight time)

Cost: starting at \$2144USD

Join underwater photographer Marli Wakeling for 12 days exploring the legendary Lembeh Strait. A small group trip for those interested in macro life such as nudibranchs, octopus, seahorses and unusual critters. *Spaces are limited and filling fast.* Best guide ratio in the Strait of one guide per buddy team. Prices start at \$2144USD based on Double Occupancy, and include Nitrox, 3 day boat dives per day, 1 free shore dive per day, all meals and transfers. Airfare and enroute accommodation not included.

Email scubamarli@gmail.com for details and to book your spot.





Dan Clements

Washington, USA
Founder/Columnist

Dan is an adventurer who has a deep appreciation and respect for the world's natural wonders and life in its many varied forms. He has climbed, skied, sailed, SCUBA dived, and traveled throughout the world. He has made first ascents in North and South America, and run major white water rapids in Africa and the Western Hemisphere. He wrote the now sold out Critters, Creatures, and Kelp in 2009.

He was fortunate to have parents who exposed him to Hopi, Navajo, Seri, and Lacandon First Nations populations. Later in life he was privileged to be able to spend time among the Bushmen (San) of southern Africa, and Qechua and Aymara in the Andes. He is working to try and increase knowledge and appreciation of Pacific Northwest indigenous populations.

He holds an MBA in international finance and has sat on boards for United Way, Housing Hope, Cayenta Systems, Eden Systems, Snohomish County Public Facilities District, and Ibis Publishing.

When he is not underwater photographing he enjoys cooking, back country skiing, distance running, mountain biking, and opera. Everett, Washington is home base and where he and his wife Karen raised two sons.



Kerry Enns

British Columbia, Canada
Editor/Publisher

Kerry grew up in Brazil as a missionary's child and moved to Wisconsin at the age of 10. While her father worked on his studies, she entertained herself by cycling, swimming and fishing and earned spending money by delivering papers and babysitting. When her family moved to Winnipeg, she found herself heading to British Columbia to go to Trinity Western University. She married and stayed in BC raising 2 children.

She holds a degree in Geography and is certified to teach elementary and middle school students. She currently works part-time as a Teacher on Call in order to fund her diving, photography and travel.

She enjoys travelling and has had recent visits to the UK and India visiting her daughter. She hopes to continue to travel as much as her finances allow it and would like to someday dives the beautiful tropical water world wide. She particularly wants to visit Brazil not only to dive but to work on her fluency of the portuguese language.

She is very excited about this magazine and looks forward to the opportunities it will bring.



Talia Cohen

British Columbia, Canada
Creative Consultant

Talia grew up in South Africa, and has lived in the Missouri, Rhode Island, New York, and now calls Vancouver her home with her husband and 2 dogs.

She is a Creative Director, and has attended the Rhode Island School of Design, Brown University, MIT and Babson. Talia has produced work for some of the world's leading companies and organizations including Unilever, General Mills, SportChek, and The BC Dairy Foundation.

Since a young age she has been enchanted with the world below the surface. And, when not at the studio, she takes every opportunity to explore the underwater world, camera in hand.



Ben Normand

Ontario, Canada
Columnist

Ben Normand is a keen explorer of the aquatic realm. He is constantly striving to expand his knowledge and experience. While all facets of oceanography, biology and geography interest him, his true passion lies with the study of, and interaction with, marine mammals. Notable marine achievements include diving the Great Barrier Reef and swimming with the Hector's dolphins in Akaroa.

He currently holds a B.A. With honours from the University of Toronto where he studied environmental policy and religion. He is currently taking steps towards obtaining a Masters degree on one of the coasts. He is hoping to study the impact of various fishing methods on the health of regional populations of the rorquals.

His personal interests include sailing, skin and SCUBA diving, hiking, reading and movies. He resides in beautiful Port Hope, Ontario with his wife, daughter and dog.



Dale Carlisle

*British Columbia, Canada
Columnist*

Certified in 2007, Dale is interested in several facets of diving. As a long time fishkeeper and naturalist, he loves being able to access the aquatic realm in order to better observe fish habitat and behavior. In 2010 he began a long term study of a local lake (The Cultus Lake Project) in order to learn more about an endangered species of fish that resides there.

Out of that interest he began learning how to capture images of his subjects and continues to develop his underwater videography as both a vehicle of communication and art form.

Dale also enjoys researching the historical aspect of diving and often uses vintage era gear and techniques himself, which he shares with others at www.manfish.ca.



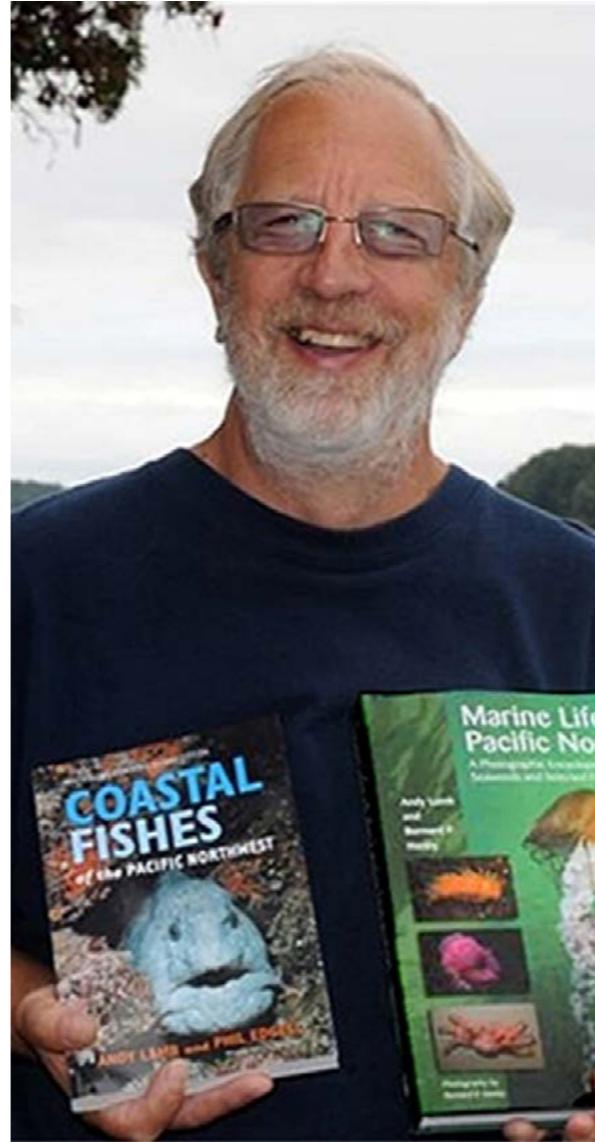
Donna Gibbs

*British Columbia, Canada
Scientific Consultant*

Research Diver/Taxonomist, Howe Sound Research Program, Vancouver Aquarium Donna Gibbs has been working at the Vancouver Aquarium since 1992 and is an expert in local marine taxonomy. She has over 2300 logged cold water research dives and has been diving for the Howe Sound Research Program for 20 years.

She has contributed to 7 scientific journal articles, and also played an integral role in producing Andy Lamb's Marine Life of the Pacific Northwest. Her work directly contributed to the discovery of the cleaner lebbeid (*Lebbeus mundus*), a previously unknown cold water shrimp.

Her recent work focuses on photo documentation of organisms in Howe Sound, and on training less experienced divers in marine taxonomy. Donna manages the Pacific Marine Life Surveys database.



Andy Lamb

*British Columbia, Canada
Scientific Consultant*

Andy Lamb is a marine naturalist and educator who has worked as Chief Collector at the Vancouver Aquarium and as a fish culturist with Fisheries and Oceans Canada. He is the co-author of *Coastal Fishes of the Pacific Northwest* and *Marine Life of the Pacific Northwest: A Photographic Encyclopedia of Invertebrates, Seaweeds and Selected Fishes*, both are found in almost every diver's library of the region.

Andy has served as the team for PNWDiver since the beginning and helps members identify marine life and keeps us abreast of news in the scientific community. <http://www.cedar-beach.com/about.shtml>
andy@cedar-beach.com



Michael Meagher

*Washington, USA
Guest Columnist*

Mike began diving in 1976 in Southern California and hasn't stopped diving since. In 1977 he purchased his first underwater camera, the Nikonos III and began learning how to take photos underwater. He worked in a dive shop in So. Cal for a few years, became a PADI instructor and learned the trade in the mid 80s. During that time Mike read extensively on underwater photography, purchased more equipment as well as a small dive boat named the "Shark Bait" in order to explore the shipwrecks and reefs. It was also during those years that Mike was an active member of the Los Angeles chapter of the Underwater Photographic Society, and won several awards and international competitions. Graduating from Cal State Fullerton, Mike relocated to Washington in the early 90s, and began exploring local dive sites. In 2008 he took up videography using Sony camcorders. Mike enjoys custom modifying his underwater photography and video equipment. He is a regular contributor to the San Diego Underseas Film Exposition and his short underwater films can be seen on-line at youtube.com/wolfeeldiver. Recently Mike founded DeepPro systems, a niche manufacturer of underwater video equipment, and resides in Bellingham, Washington.