

AQUANEWS

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Bacterial Contamination in Rinse Tanks a new study says don't dip your mask and regulator

Recreational divers typically rinse their equipment in "communal" tanks filled with fresh water after completing dives. Often all the equipment (wetsuits, booties, fins, BCDs, regulators with mouthpieces and masks) is rinsed in common tanks. In some facilities, a separate tank is provided for rinsing regulators. Masks are often rinsed and even stored in a common tank on boats before a dive.

Few studies have addressed the possibility that these communal rinse tanks may harbor pathogens and transmit disease. We first reported that communal rinse tanks at a dive facility in Roatan indeed contained significant levels of many types of microorganisms (*Microbe*, December 2007, p. 577). However, because that dive facility did not allow us to sample the water entering rinse tanks, we were unable to determine if the microorganisms originated from the water used to fill tanks or from equipment that was rinsed in the tanks.

Recently, a report documented the spread of conjunctivitis among divers using two dive boats off of Fiji's Vitu Levu Island (*Undersea and Hyperbaric Medicine*, 2008 vol. 35, p. 169). Among 29 divers, 14 cases (almost 50 percent) of conjunctivitis were ultimately documented. The pattern by which conjunctivitis was spread among divers and between boats was consistent with the outbreak arising from the divemaster, a Fijian resident, who reported having an eye infection prior to the outbreak and who placed his own mask in the communal mask container (*Undersea and Hyperbaric Medicine*, 2008 vol. 35, p. 169). This study established that disease can be

transmitted among scuba divers via communal tanks. (Read our interview with the study's author in our September 2008 issue.)

In October 2007, we investigated the extent to which bacteria were introduced into communal rinse tanks, via water used to fill tanks and via dive equipment rinsed in them, and whether cleaning a rinse tank with bleach once a day reduced the subsequent bacterial population. A dive facility in Bonaire cooperated in this study but wished not to be identified.

Samples from boats returning from afternoon dives showed very high levels of many types of bacteria.

The facility had two rinse tanks for general equipment and one tank for regulators. Each morning for three days, at 7:30 a.m., one equipment rinse tank, designated "A" was emptied, scrubbed using undiluted bleach, then rinsed several times and filled with fresh water from a hose. The other equipment rinse tank, "B," was emptied, rinsed several times with water and filled with water from the same hose but was not bleached. We did not empty, clean or fill the regulator rinse tank. During the day, dive staff would occasionally drain and refill equipment and regulator rinse tanks. Water samples were obtained from the three tanks three times daily: 8 a.m., 1 p.m. and 5 p.m. The samples were placed in a refrigerator until the day of departure, then put in a suitcase, placed in a refrigerator 12 hours later, and finally examined for colonies and photographed.

(Continued on page 2)

AQUANEWS

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Pictures of plates can be viewed as a PowerPoint presentation at <http://www.hsc.wvu.edu/som/bmp/miller.asp> - - click the "Bonaire 2007" link under the topic "Research."

No bacterial colonies were observed from water samples filling the rinse tanks. The 8 a.m. water samples, immediately after equipment tanks were cleaned with bleach (A) or not cleaned with bleach (B) and filled with water, did not give rise to any colonies on all three days.

In contrast, 8 a.m. water samples in the regulator rinse tank contained a high level of bacteria on all days tested. Presumably the regulator rinse tank had been used to rinse regulators the previous day and after night dives. At 1 p.m. and 5 p.m., rinse tanks A, B and the regulator rinse tank usually showed high levels of bacterial contamination. Cleaning tank A with bleach did not reduce the subsequent bacterial level. In several instances, water samples showed low levels of bacteria -- this was apparently because the tanks had been recently drained and refilled. It was only possible to obtain water samples from two mask rinse tanks, both at 4 p.m., as boats were returning from afternoon dives. Both of these samples showed very high levels of contamination by many types of bacteria.

Our studies show that bacterial contamination of divers' rinse tanks at this Bonaire facility was introduced by rinsing equipment, not by water used to fill tanks. Presumably, other potential pathogens, like viruses, are also introduced into the rinse tanks. If divers with a communicable illness (like conjunctivitis, the "common cold," infectious mononucleosis, diphtheria and streptococcal infections) rinse equipment in a tank, people who rinse after them may pick up the transmitting microorganism and become infected.

We conclude that, if possible, scuba equipment, especially mouthpieces and masks, should be rinsed well with fresh water or alcohol swabs rather than in communal tanks, to reduce the potential of spreading or contracting disease. Studies are now in progress to identify the bacteria that inhabit the rinse tanks.

Michael R. Miller is a professor of biochemistry at West Virginia University, and Tammy S. Miller is senior office administrator of the department of microbiology and immunology at West Virginia University.

Rockland Aquanauts Organization Inc.
Mission Statement:

To provide, promote, and advance environmental protection, care, and voluntary clean-up of waterways by any and all lawful means; to promote the importance and care in every manner possible by environmental awareness and otherwise; to purchase, print, publish, and circulate literature to promote the importance and care of the waterways and the work of the Corporation. To perform all acts the Corporation may deem appropriate or advisable in such operation; to establish, provide, and voluntary clean-up waterways, to encourage, support and subsidize the cleaning and protection from pollution.

What's the best way to store scuba gear when not in use?

Lots of expensive dive gear is ruined by improper storage.

Some points to consider:

1. Dive gear **SHOULD NOT** be left to dry in the sun. Ultraviolet light is damaging to rubber, silicone and neoprene. Most dive gear contains some of this material so dry it in a shady spot.
2. Rinse your gear with fresh water after every use. Try to keep the gear from drying before you get a chance to rinse it. Salt will crystallize when the water evaporates, making it more difficult to remove after the gear is dry. Chlorine from swimming pools is as damaging to dive gear as salt so rinse it after using it in a pool as well. If the gear has dried, soak it in warm water with a suitable cleaner to dissolve salt crystals. Rinse the inside of your BC if the air smells a little stale. Dry the BC partially inflated so the inside of the BC bladder doesn't stick together.
3. Rinse your regulator and instruments just as you do the BC. Be sure to keep the dust cover in place to keep water out of the first stage. If the regulator is not pressurized, be sure **NOT** to depress the purge button while rinsing the second stages.
4. Wetsuits, hoods, boots and gloves can be rinsed in the same manner as the BC. **DO NOT** put them in a washing machine! Hang wetsuits and keep boots and hoods open so the inside can dry. I like to hang my wetsuits inside out so the inside can dry more quickly. If you're going to have odor problems, it's usually because of bacteria and body oils and these are found on the inside of these articles so drying them inside out will help control odor.
5. Clean your mask just as you did the rest of your dive gear. Dry the glass so there are no water spots. If residue or water spots remain, the mask will fog up the next time you use it...even if you use antifog.

Once everything is completely dry, store it in a cool, shady place. I keep my gear indoors so the humidity can be controlled to prevent mildew. Hang or roll your wetsuit so it doesn't develop creases which will lower it's insulation abilities.

Also don't kink the regulator hoses or the low pressure inflator hoses on your BC.

Be careful not to let black rubber come into contact with clear silicone (like your mask skirt). If you do, the clear silicone will take on a permanent brownish stain. It won't hurt the silicone but it just doesn't look good.

by Mike Giles Mike's Dive Center

Peter Bein finally makes it to Truk Lagoon

by, Paul Galeazzi Jr.

Peter and I spoke many times about going to Truk Lagoon together for some awesome wreck diving. We made plans a few different times but I guess it was never meant to be.

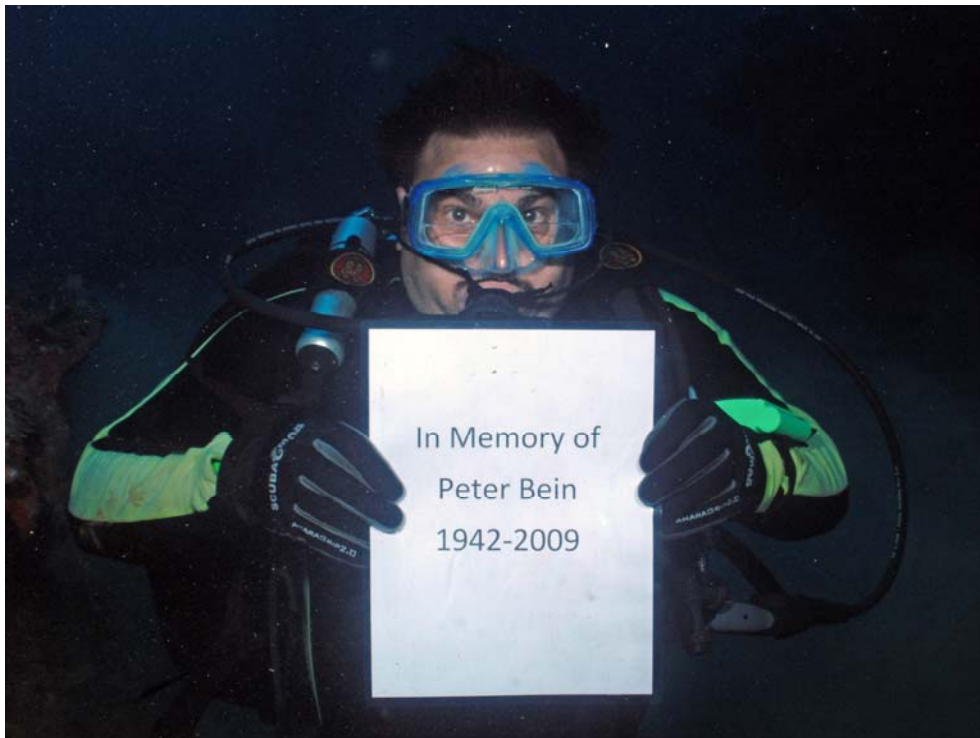
One of those times he had become very sick and our plans had to be cancelled. Then it was my turn to become sick and again our plans were ruined. Well that was the last chance that we ever had because Peter had passed away and there went our plans forever to dive Truk together.

Well I came up with an idea that many may think of as being stupid, but it was something that I wanted to do. I printed out a photo of Peter which I had heavy duty plastic hot laminate applied. I figured that at least I would be able to waterproof the photo for a dive to one of the deepest wrecks in Truk.

I decided to take the photo down to the San Francisco Maru and bury it under the port tank, which is mounted to the deck. I would say that this tank is one of the most photographed parts of the wreck, since it went down.

After having my dive partner, Paul Journet Jr. take a few photographs, I buried the photo as deep as I could into the silt. I then placed a heavy object on top to hold the photo in place.

Then I said a few words that I guess only I could hear, unless Peter was listening, which I hope that he was. At this point it was time to make my long ascent back to the surface. All I was able to think of was that if Peter had seen what I did and maybe we did finally make it to Truk together. All I could do was to hope and Pray.







A way to get rid of the lionfish

It is no news that the lionfish has invaded the coast of the Dominican Republic, and most of the Caribbean. It is true that it is a very effective predator, with no known natural predators in the Atlantic, and it has become a regional pest. That is why the Reef Check Dominican Republic Foundation organized a tasting in La Caleta Submarine National Park, as a way to encourage consumption.

During the activity the delicious and tender white meat of lionfish are offered in various preparations such as fried, plain or accompanied by delicious sauces, all this by way of cooperation from the Dominican culinary well known magazine *Gastroteca* and its team of chefs and cooks . This activity was developed in the park, where fishermen and divers have confirmed the presence of the species in the area.

The man has been effective in eradicating species of fish and we could do the same with the lionfish, or at least control its population. Since it is a poisonous fish, it is good to know that the venom is found only in the fin spines, so it is recommended to consume lionfish after all fins are cut off from its base. Other countries with coastal cities such as Colombia, Mexico, Bahamas, Honduras , and Puerto Rico have launched programs to encourage consumption as a form of control and has proven to be effective.

About the Lion Fish (*Pterois volitans*)

It is a marine species native of the western Pacific and Oceania. Because of its beauty and behavior, it is very popular among the aquarists, and one of the 10 most valuable species imported in the United States. The most likely explanation for the arrival of the fish the Atlantic Ocean is through the aquarium trade.

It is also possible that the lionfish may have been transported through ballast water of ships traveling from the Pacific Ocean.

The juvenile *Pterois volitans* have a great capacity of movement, which has allowed them to be seen around the island. They are carnivores that feed on small fish, crustaceans and molluscs and are remarkably quick to adapt to new types of food and therefore pose a threat to marine biodiversity, economic activities focused on tourism and fisheries.

The lionfish is an alien species (not Caribbean), which competes with other territorial local species, alter the marine ecological balance due to their and has no natural predators in this area.

The species is crepuscular and nocturnal and is found in tropical coastal seagrass beds, coral reefs or shallow lagoons.



You Never Know What You Shall Find

By Lada Simek

In my 50+ years of being above and below the waters of Long Island Sound, I have understandably had some interesting, beautiful, strange and scary experiences. When Ruth asked for articles, I began to reminisce.

The scary one I shall never forget. I was finning at 60 feet, alone and in total darkness on a 130 foot steel shipwreck. I had three feet of visibility, but I have been on this wreck before. A steel wall in front of me gave me no concern, but a vertical one alongside got me confused. When I saw the steel ceiling above me, I thought that somehow I swam inside this tanker and that in about thirty minutes I will be dead! In this visibility on something this size, finding the entrance hole was highly unlikely. Well, it turned out I wasn't inside, but since then I never dove without a reel.

There were amusing times as well. Back in the 50's I was not certified but my buddy and I were devoted to spear fishing. Try that on four foot vis! You have to sneak up on the fish. We were both quite proficient, but on one breath-hold dive my buddy came up gasping- "I can't breathe through my snorkel!" I found his problem- there was a condom draped over the end of it!

My turn came soon after that. I found a floating object about five inches long, completely covered with all sorts of marine life algae, barnacles, baby mussel and whatnot. It did not look like it belonged in the water. It looked foreign. I picked it up and examined it. When I gave it a gentle squeeze, the color and smell identified it. It was a turd! So much for the diving in the 50's. Remember, no complete sewage treatment, no birth control pill.

On one shipwreck I found ingots of lead, about two feet long and 110 pounds on the average. How do I get them up? It was over 1200 pounds!

I took a large C-clamp and sharpened the screw. I could now drive it into the lead while a lift bag tied to the clamp did the rest. I then had to move them to the marina, to my car and to my parking lot. I sold them for \$200 to a guy who made fishing sinkers, but had to give \$100 to a chiropractor to straighten my back.

I have found every piece of dive equipment except a tank. At one time I had about twenty dive knives stuck in my ceiling. (Don't ask why- it seemed a good place to keep them). I have found silver and gold, but I would trade them all to know the answer to this puzzle.

While diving off Hen Island in Rye, in about fifteen feet and a hundred feet from shore, I found a US Divers Calypso regulator and gauges. What made it so strange; the regulator was **still attached to the tank valve!** There was no sign of a tank or any other dive equipment. Who in the world removes a tank valve with the regulator attached? Or, who in the world takes a regulator, attaches it to a valve and then drops it overboard? The threads of the valve were perfect. The valve would have had the brass threads deformed if rusty tank threads allowed it to blow out. I took the items to three dive shops and no one knew anything about it. The regulator looked maybe two years old. I would welcome any feasible explanation today.

ANNUAL MEMBERSHIP FEES

Rockland Aquanauts Organization
2011 Dues

I guess it is that time of the year again, Membership Dues are due.
Last year all our members received much more than they gave out to the Organization.
As usual you will be receiving a tax donation for the first \$25.00. Don't forget we
have all the BBQ lunch's after every Lake Dive.

So please send in your dues to;
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How to Store Your Dive Gear, A Way to Get Rid of Lion Fish, You Never Know What You Shall Find

**We are currently looking for a place to have our 2011
Annual Dinner...**

Any suggestions?



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