

THE REEF SEEKER



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NTSB REPORT ON CONCEPTION FIRE – WHAT THEY FOUND & WHERE WE GO FROM HERE

On October 20, the NTSB Board met to receive and accept or amend the NTSB field staff report resulting from the dive boat Conception fire of September 2, 2019, which took the lives of 34 people. The Board also was to make findings about the cause of the tragedy as well as recommendations as to what can be done to try to make sure it doesn't happen again. The video of the entire 4-hour meeting is available at www.nts.gov. What follows here is my interpretation of what happened.

A couple of important caveats need to be revealed. (1) As a dive shop owner and scuba professional, I may have a different take on things than a non-pro will. (2) Reef Seekers has had a business relationship with Truth Aquatics over the years. (3) I personally consider Truth Aquatics owner Glen Fritzler to be a friend. (4) One of our regular customers and one of my former students was on the boat and died.

Also be aware that I've read through most of the 1,600+ pages of the public docket, which contains much of the raw materials (interviews, investigations, etc.) that the NTSB staff used to reach their conclusions. And I watched all of the 4-hour hearing as well as the 15-

minute media briefing that followed.

The investigation essentially looks in two directions. On the one hand it looks backwards to see what happened and why. And, based on that information, it then looks forwards to see what can be done – either through attitude, regulation, construction, or whatever – to try to prevent this from happening again.

Also bear in mind, although it didn't seem to factor into anything on the part of the NTSB, that one month after the Conception fire, there was another eerily-similar fire that totally engulfed and sank the Red Sea Aggressor. In that fire, 17 passengers and all crew survived but one passenger died. That fire was discovered shortly after midnight whereas the Conception fire happened around 3AM.

It seems to me that you classify the conclusions, in both looking forwards and backwards, into three areas: (1) Cause/Prevention, (2) Detection, (3) Mitigation, which includes getting people out of harm's way and fighting the fire if that's even possible.

Let's look backwards.

For Cause/Prevention, you need to know what started the fire. Eliminate the cause, prevent the fire. But in this case, the NTSB could not come up with a definitive answer as to cause. Bear in mind that they consider themselves a fact-based agency. They don't want to deal in speculation. While there is certainly a lot of circumstantial evidence and speculation that points to a lithium battery explosion causing the fire, there's no definitive proof of that.

Part of the issue here, and with other aspects of the investigation, is spatial relationship. Where objects end up and what condition they're in after an accident can tell investigators lots about how

the accident happened as they try to reconstruct things. Think of a plane crash and debris spread out everywhere. Where items end up provides valuable clues.

In the case of the Conception, jumping ahead to the fact that a number of victims were found with their shoes on, if they were found in their bunks with their shoes on, that says one thing. If they were found halfway up a staircase with their shoes on, that says something totally different.

In addition to the Conception fire being so intense that it basically burned everything on the boat, and then that all melted into the lower portions of the boat (including the bunkroom), the boat then turned over and sank, and everything – including the bodies of the victims – shifted and likely dumped out, and fell roughly 60 feet to the ocean floor. As body recovery was the first priority and weather hampered the timeline on that, evidence lay on the bottom in shifting surge and currents for 10 days before the hull was eventually raised. And since there's no real inventory of everything that was on the boat, there's also no guarantee that every piece of evidence was recovered.

To go back to the concept of spatial relationship providing vital information, the point here is that once everything settled to the bottom, spatial relationship was destroyed because you don't really know where items were and currents and surge may have moved things around in a way that's impossible to reconstruct. So if a battery was recovered and showed evidence of fire damage, could you tell if it was Battery Zero and started things going as opposed to the raging fire causing it to explode? Probably not.

In discussions I had with investigators, as much as they'd like to discover the

definitive cause, the fact of the matter is that fires will continue to happen at sea and there's no way to 100% guarantee that another fire won't break out.

For Conception, the cause of the fire certainly could have been a battery or charger brought on by one of the divers. It also could have been the electrical system of the boat, either overloaded from all the charging or perhaps there was some unknown short that sparked and caused the fire. The fire also could have started from someone smoking on deck and tossing their smoldering butt into a plastic trash receptacle. And the other thing you have to consider is arson (of which there is zero evidence, but it's a consideration until ruled out).

Bear in mind that even though this fire was on a dive boat, diving had nothing directly to do with the fire. So the results of the NTSB recommendations, if adopted, will affect ALL small commercial passenger vessels that engage in overnight operations (known as T vessels because they're regulated by Sub-Chapter T). That's dive boats, fishing boats, boats that take people to island campsites, river boats, etc.

The other thing to bear in mind when considering cause is that of the four areas I mentioned, only one is under the control of the boat, and that's maintaining the integrity of the electrical system. The other three all involve things that passengers either bring on board or do. So even if the boat is in tip-top shape, you could have a passenger's battery/charger issue, a passenger smoking problem, or an arsonist, and nothing you will have done will prevent that fire from starting.

That's the reason Detection is considered so important and the NTSB really took Truth Aquatics and the Coast Guard to task for deficiencies in that area. Obviously, the more quickly you detect a fire after it's started, the better your chances are of either extinguishing it, limiting it, &/or getting people out of harm's way (which on a boat might mean sequestering everyone on the back deck, or abandoning ship).

Coast Guard regulations (from the Certificate of Inspection or COI) required the Conception to have a roving watchperson on duty. Here's the exact wording from the COI: "A member of

the vessel's crew shall be designated by the Master as a roving patrol at all times, whether or not the vessel is underway, when the passenger's bunks are occupied." To cut to the chase, you need to have a night watchman while everyone's asleep.

This is the most serious deficiency NTSB found and they feel that everything else stems from this. Although there was a crewperson who was in the galley at 2:35AM, it appears that no one was specifically assigned to be the overnight watch as the crew testimony indicates five of them were in the wheelhouse and one (who died) was sleeping in a crew-designated bunk in the lower level bunkroom area.

There is controversy as to whether they were all asleep or not. NTSB only interviewed three of the five surviving crew members. One crew member – the one who broke his leg when jumping from the wheelhouse and who is now suing Truth Aquatics - refused to co-operate with the investigation. The other crew member, Conception Captain Jerry Boylan, showed up twice to be interviewed by NTSB but was prevented from doing so by those spearheading the criminal side of the investigation. My understanding is that Boylan would have testified that he and possibly one other crewperson were awake in the wheelhouse after the crewman came up at 2:35AM. This certainly doesn't satisfy the requirement of a "roving patrol." But it paints a different picture in the court of public opinion than the statement "The crew was all asleep in the wheelhouse when the fire broke out."

And while I've stated on many occasions that a roving patrol is not a 100% guarantee that things would have been different, a point conceded by NTSB Chair Robert Sumwalt in his post-hearing media briefing, it's certainly logical to think that had the roving patrol been maintained, there's a good chance the fire would have been discovered sooner than it was and that lives could have been saved.

NTSB was also very critical of the Coast Guard in their ability to determine if the roving patrol standard was being met. There are no regulations for keeping a log or record of this and it turns out the Coast Guard hasn't cited anyone in almost 30 years for failure to maintain a roving patrol. The last citation or this was issued in 1991. So NTSB recommends that Coast Guard create some way to ensure that roving patrols are being done. Obviously the USCG can't go boarding every boat in the middle of the night to look for the roving patrol, but they can require that records be kept and that they then inspect those records as part of the overall annual USCG inspection of a vessel.

Another lesson out of all of this is to take not only the threat of fire but an actual fire (including one in your home) much more seriously. There's a video on-line from the Oak Ridge (Tennessee) Fire Department that shows just how quickly a fire goes from starting to flashover – which is when essentially everything is burning and the temperature of the fire is over 1,000° – and the elapsed time is around three minutes (<https://youtu.be/BtMmymOxdjc>).

2021 DIVING VACATIONS

January 13-22 • Socorro

May 29 - June 5 • Bonaire

July (??) • Indonesia

August (??) • Isla Mujeres

And that brings us to two more deficiencies of which the NTSB findings were highly critical. Those were location of the escape hatch (secondary exit) and the size of that hatch. On the Conception, that hatch was in the back of the bunkroom, above two upper middle single bunks, and was 24" wide. (As a reference point, economy airline seats are around 18" wide as are many home desk chairs.) The hatch opened on the main deck in the rear of the galley/salon, perhaps 10 feet from the door leading out to the back dive deck.

For those of us who do this professionally, both as boat operators and charterers, I think one of the biggest lessons to come out of all of this deals with the location of the escape hatch. Coast Guard regulations indicate that a secondary exit in the below-decks area should be as far away as practical from the primary exit. On the Conception, and on many boats, that's going to be in the rear of the bunkroom, which is generally 20-25 feet long. But where that secondary exit leads to makes a big difference. On Conception, and on many other boats, the escape hatch opened into the same area as the main stairs. And with the exit from the salon area presumably blocked by fire, both exits leading into the same area is like having no secondary exit at all.

So, even though this design met Coast Guard standards, one of the recommendations from NTSB is that the secondary exit needs to lead to different area than the primary exit. Specifically with Conception, that would have meant that instead of the escape hatch being in the middle of the bunkroom, moving it to the area above the side bunks would have positioned the hatch under the weather deck outside the salon and people might have been able to escape since that part of the boat wasn't initially on fire. (For the record, those changes have now been made on the Vision, sister boat of the Conception.)

There was also much discussion about the size of the escape hatch. Boats built prior to 1996 (Conception launched in 1981) had to have hatches that were 24" wide. Boats built after 1996 had a requirement of 32" but pre-1996 vessels were grandfathered in and didn't have to increase their hatch size. So a wider hatch, with easier access, that leads to a different location than the primary exit, were

UPCOMING LOCAL DIVES & CLASSES

| DAY | DATE | BOAT/SITE | PLANNED DESTINATION | PRICE |
|------|--------|-------------------------|----------------------------|----------------|
| Mon. | Nov. 9 | <i>Catalina Express</i> | Avalon U/W Park (3 dives) | \$150 |
| Thu. | 12 | Redondo (Vets) | ••• Night Dive ••• | \$25 |
| Wed. | 18 | - CLASS - | - PHOTO WORKSHOP - | \$25 |
| Sat. | 21 | Redondo (Vets) | Beach dive (single tank) | \$25 |
| Wed. | Dec. 2 | - CLASS - | - FISH ID - | \$25 |
| Sun. | 6 | <i>Catalina Express</i> | Avalon U/W Park (3 dives) | \$150 |
| Thu. | 10 | Redondo (Vets) | ••• Squid Dive (night) ••• | FREE!!! |
| Sat. | 12 | Redondo (Vets) | Beach dive (single tank) | \$25 |

strong recommendations from the NTSB.

The other Detection issue dealt with smoke detectors. Conception had two, both in the bunkroom. But for a fire that started in the galley/salon area, smoke from that fire will rise to the ceiling of the galley and will not necessarily set off the smoke detectors below in the lower deck. As that fire continues to rage above – remember the issue of a flashover taking as little as three minutes with a fire burning at over 1,000° - by the time the lower-level smoke alarms trigger, it may be too late for anyone down below because either the fire will have spread too much or the people will be overcome by smoke or both.

NTSB recommends having smoke alarms in all passenger accommodation spaces, and that they be tied together so that if one goes off, they all go off. Additionally, there should be an indicator in the wheelhouse so that if a smoke alarm goes off, crew up top are notified as well.

Although NTSB didn't make any formal recommendations, there was some discussion of how quickly passengers should be able to be evacuated from a vessel. Airlines have a regulation that to certify an airplane as safe to fly, it must be able to be evacuated in 90 seconds. Should a similar regulation apply to boats? More to the point, if you were awakened out of a deep sleep, how long would it take you to get out of a lower-level bunkroom which may be filled with smoke and other passengers also trying to get out. It's not likely that this is going to be an orderly, "You go first, no after you" situation.

Another part of that discussion, but no recommendations were proposed, dealt with who should be allowed to sleep by the escape hatch in the bunkroom. On airplanes, children are not permitted in an exit row. Only adults who state they

are willing and able to help in an emergency are allowed to occupy those seats. Should a similar rule apply to boat bunks under the escape hatch?

Especially for those of us who have been following this and involved for the last 13 months since the fire, there's no way we'll ever go on a liveaboard in the same state of mind again. We're now taking a closer look at escape routes, hatches, overnight watches, charging stations, and many other issues that either were not on our minds at all, or were given scant attention.

The other area, and perhaps the most difficult for anyone who was related to or even just knew any of the victims, was how aware were they of what was going on.

Initially, the Santa Barbara Coroner (who is also the Sheriff) stated that all the victims died from smoke inhalation. The presumption at the time was that all had died in their sleep due to the ventilation system filling the bunks and bunkroom with smoke. But that scenario also begged the question of why smoke alarms didn't rouse them.

Once the autopsy reports were released publicly, it became clear that at least 15 of the victims had some type of footwear on. The NTSB believes that this means they were awake and perhaps trying to escape. Personally, I'm not so certain that it's that black-and-white. If someone screams "FIRE!!!" is your initial response to get the hell out or to say, "Wait while I put my shoes on." I truly don't know. On top of that, one victim was found with her necklace and earrings on, one had a backpack with them, and another had a lamp and possession of those items if you were trying to escape begs further explanation.

I have no idea what all of this really means. I certainly know of people that

sleep in their shoes because their feet are cold. By the same token, four of them had slippers or flip-flops on and you certainly wouldn't do that for warmth. I would also think that if people were aware of what was going on, at least one or two of them might have wrapped themselves in a blanket and tried to make a run up the stairs and through the galley/salon. Yet the crew reported seeing no one lying inside that area when they initially responded to the fire and looked through the galley/salon windows, nor did they report hearing any sounds coming from the bunkroom below. I would like to believe that all 34 people died unaware of the fate about to befall them but that simply might not be the case with the existence of the footwear evidence.

The NTSB doesn't deal with the criminal aspect of what happened but there is still speculation that charges might be filed against the Captain Boylan and possibly against the owners of Truth Aquatics as well. The most likely charge would be

under an obscure federal statute called "Seaman's Manslaughter." Basically it says that if someone dies on a vessel and it can be shown that a member or members of the vessel's crew committed "misconduct, negligence, or inattention to his duties," that person can be charged even if there was no intent to cause harm and the action or inaction factored into the death. The most obvious thing here would be to charge the captain, alleging that failure to specifically assign a roving patrol as required by the COI constituted negligence, and that that negligence then contributed to the deaths of 34 others. As of this writing, no charges have been filed but we keep hearing rumblings that they might be.

No one will dispute that this was a horrible, horrible tragedy. It's also considered a "historic" accident as it is the worst California maritime disaster in terms of loss of life since 1865, so there was no expectation that a federal regulatory agency like the NTSB wouldn't attempt to find deficiencies, assign blame,

and make recommendations. And terrible as it all may be, we can all hope that something positive can come out of this in the form of new awareness and new regulations to insure that this never happens again and that family and friends are spared the grief and agony that family and friends of the Conception victims have gone through. In the same way that the sinking of the Titanic and the sinking of the Andrea Doria brought about an increase in maritime safety, the tragedy of the Conception may produce a similar result.

The solutions seem rather simple: Be aware of charging/electrical limitations, maintain a night watch, install interconnected smoke alarms and more of them, and relocate escape hatches to alternate areas. And up until such a time as such recommendations can be written into law, the hope of the NTSB – and likely the diving community as well – is that these things will be done voluntarily, so that we never have to go through this type of investigation again.

PICTURE PAGE - Orange-ish Halloween Creatures

(All pix by Ken Kurtis © 2020)



Bristle Worm
Roatan



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Two-spined Angelfish
Yap



Crinoid Shrimp
Indonesia



Juvy Bicolor Parrotfish
Maldives



Juvy Garibaldi
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