Announcer (00:02):

You are listening to the Safety Moment Podcast by utility safety Partners. Safety is always a good conversation and it's a click away. Here's your host, Mike Sullivan.

Mike Sullivan (00:15):

This episode of the Safety Moment takes a different look at knowing what's below. My guest today is an old friend from my high school days, Mr. Charles Chuck Kohnen. We used to call him back then. He is with sea, imagine. I guess he's the CEOI should check on that. But anyway, he's one of the head guys, a sea imagine. And Charles and I went to, I said to high school together in a suburb of Montreal, and we recently reconnected via LinkedIn. And I was so intrigued by his work and his passion and the accomplishments that he's had that I invited him to join me as a guest on the safety moment. And when you hear and visualize the fascinating experiences Charles has lived and observed beneath the surface of the waves around the world, you'll understand why I invited him to join me today. Charles, thank you so much for joining me. This is what a treat, personally this is. I mean, we were just chatting a couple of seconds ago that we haven't seen each other in over 40 years. That's a lifetime. It's amazing. It is. It is. I'm so curious to find out how does a guy from the suburbs of Montreal, the two of us, what path led you to where you are today? We're going to get into all this, but first and foremost, how have you been? What is Charles Kohnen life like now?

Charles Kohnen (01:42):

Mike? It is an absolutely pleasure to see you after 42 years and to listen to you. This is amazing. It is amazing. Look, it's a pleasure to be here and a pleasure to do this. What did John Lenon say? Life is what you plan. No, life is what happens while you plan things. Well, you're making plans. Yep. So there's a long journey on how we got to be in the summary in the world. So I'm currently based in California where my company CIMA that I built with my partners that we built here in California. So the journey is from last time I saw you in 1983, I had dark hair. It's

(02:34):

Without too much detail. I went to engineering, went to McGill and did a degree in electrical engineering. After that, I ended up working in the oil, offshore oil industry doing oil exploration. I was five years in Africa and West Africa, mostly on oil rigs offshore. And then a year in Indonesia, ended up in China and a bit of Mongolia where I was supporting for a company called Schlumberger. Schlumberger is, you know who they are. So I worked for them in the oil service sector internationally. I never worked in North America with them. So from there I left that and started the company with my brother who was based here in California. And I brought some my friend engineers from Schlumberger and we all met up here in California and started the company here. That was in 1995. So

Mike Sullivan (03:39):

30 plus years ago almost. Yeah, quite

Charles Kohnen (03:41):

A long time ago. 30 years, 30 year mark for the companies this year. And that's basically how the journey of when we started in 95, there was no such thing as a submarine sector. There was nothing. The email was just started. There was nothing. But you couldn't go on the market and buy something didn't

Mike Sullivan (04:07):

Exist. Well, not unless you were a James Bond villain, right? I mean then you could maybe do

Charles Kohnen (04:12):

That and then you could do one for the movie, but not a real one. Yeah, that's right.

Mike Sullivan (04:16):

That's right.

Charles Kohnen (04:16):

And in the nineties everything was changing. If you remember the email was starting and I thought, look, the idea of why I became an engineer, it wasn't really to just work with the oil service sector. And after many people asked me, so how did you come up with the idea with a submarine? And I normally tell them how I was actually in high school and at the time I was doing a lot of artwork as you know. And you were also Yeah, I was, yeah. But I was academically quite doing well and I was debating, should I go and do something in the artistic world or should I just call my academic career and go and technical? And I remember I was raised in Quebec on a dairy farm, so we had to milk cows every day. And so it's a lot of work. And I remember clearly it was a Saturday, I finished milking the cows.

(05:23):

I go home, I go back in the living room and I sit down, I put the TV and there's a movie and it's a Star Trek movie. And I'm watching Star Trek, and this is like I was in grade 10 or something like that. And I'm looking at the movie and I go, man, I want to build that. And that's why I became an engineer instead of an artist. Well, art influenced you in a sense. In a way it does. And people ask me why Jacque cto, the main inspiration. I said, look, we all love Jacque cto, they part, but the reality had more to do about Star Trek than it had to do with gusto. And years later, when the nineties when we started it, it was to take a fresh look on how we do a commercial submersible product as opposed to what had been done traditionally. And that's how we started it. And here we are 30 years later and I'm happy that we have now competitors that were not the only one. And it proved that we weren't completely crazy. And now there's three competitors out on the market. So it evolved,

Mike Sullivan (06:35):

And I'll go back to again 42 years ago, and you clearly had a very strong academic flare and you're one of the most intelligent guys in the high school and they are graduating year. No question about that. Maybe there wasn't a lot of competition, I don't know. But no, you were clearly a really bright guy and we knew that. But you were also very humble. And that's not always the case. That's not always the case when you have somebody who's as bright as you were and you had a really strong work ethic, your family obviously did. You worked on the farm. And one thing that always impressed me about you is you had these massive forearms from working on the farm. And I was like, this guy's tough man. He's solid. That's true. It was

Charles Kohnen (07:29):

Milking cows every day, man.

Mike Sullivan (07:30):

Well, exactly. I can't imagine.

(07:35):

I knew when you're in school, well these guys are going to do something and then these people are maybe not, and other ones will just get through life and maybe things will happen. Like you said, John Lennon said, life happens when you're making other plans. But to see, and I was on LinkedIn that I saw you post something and I said, oh, this is interesting. And to wind up have a guy from the south shore of Montreal and with a dairy farming background and an artistic background as we were just saying, and then get all the way to California with a submersible personal, well personal and also military potentially right as well, submersible company. It's fascinating. It really just that in itself is worthy of a book or a movie because we did have humble beginnings. We weren't in affluent neighborhood. We didn't have the resources perhaps that a lot of these communities do today. And whatever we achieved, we had to make it on our own. So first and foremost, hats off to you. The recognition is well deserved, really well deserved.

Charles Kohnen (08:52):

Well, thank you, Mike. But I think the challenge for these kind of novel companies like mine is that in our careers you have a path. I was very well entrenched in the professional path in oil service sector by then. To leave that safety and go completely entrepreneurial on a dream but also on a vision of doing something different is very, very challenging. And it's challenging because you don't know exactly where it is all going to end up, right? So you need a lot of confidence that whatever the problem is, even if you don't have all the answers, you can figure it out. You can figure it out. And it's not good enough for you to know your business partners and your staff and everybody else got to have the same motivation and vision.

Mike Sullivan (09:49):

Well, leading anything to be, whether it's a small company or leading a vision like you're saying, or coming into an organization that has been there for a long time and changing its path forward, it takes a lot. And it's something that either you have it or you don't. And if you have it, you can improve upon it and you can bring people with you. But if you don't have it, if you don't have that quality, you're probably not going to get anywhere. And again, I just find it fascinating.

Charles Kohnen (10:20):

I usually try to talk people out of just when they start young and they want to go straight in entrepreneurial, I go, okay, I try to talk 'em out of it for two hours. And if they still want to do it, they go, okay, I was just checking if you're going to give up, if you haven't give up. Okay, maybe you should because it's going to be pretty tough.

Mike Sullivan (10:38):

Well, I, and I still, here I am almost 60 and I think, well, maybe I should go out on my own. But no, that time has passed. I first moved to Calgary, it was digressing a little bit. I almost bought a music store. That was my almost path into entrepreneurialship. I'm glad I didn't, but I didn't want to mix my passion with business. But so we were talking a few seconds ago, and you mentioned when you're at McGill, this is before we started recording, but you mentioned when you're at McGill, you did a mural for the engineering

Charles Kohnen (11:13):

Department. I did, I did. I did.

Mike Sullivan (11:14):

Tell me about that. That in itself is like, okay, subliminally, subconsciously you were thinking of something.

Charles Kohnen (11:20):

I remember, you're listeners probably know we were both, you and I were both doing a lot of artwork in high school. And when I was at uni at McGill in the engineering, they had a hall, which they called the aquarium. It was by the old McDonald building. And the student council had asked me if I could draw a couple of fish on the mirror because from the outside you have this big glass wall that surrounds the building. And it looked like students that were a little fish in the aquarium there. And instead of just drawing a couple of fish, I did a whole mural. They looked at it, the dean looked at it, they approved it, and I spent the summer painting this whole mural in it. And it was a whole theme of underwater fish and octopus. And they were all jokes. Cartoon

(12:15):

Of funny situation where you have tuna fish looking at a tuna can on the sea floor, that kind of thing, right? So I had all this whole, but this is years before I even knew I was going to go build submarines. So I remember when the alumni reached out to me and they found me in California because Miguel alumni wanted to do a story on the mural because it was there for quite a few years. And they wanted do a story. And they found me is they found me in California building summaries. They were quite surprised. Well, life imitating,

Mike Sullivan (12:47):

Arts, art, imitating life. Yeah,

Charles Kohnen (12:51):

It was pretty funny.

Mike Sullivan (12:52):

So I don't remember you ever having a fascination with the ocean though.

Charles Kohnen (12:58):

No, it didn't come that, like I said, it came much more from an inspiration of exploration. Why my story, why Star Trek was probably more of inspiration than cto. And the reason I wanted to become an engineer was to create something, was to build something new and inspired a way forward in something dynamic. And I was always present that I didn't want to just make a new cookie cutter. I wanted to do something very different that could help lift things up. And when we started, so my brother started with the idea that because he was working for a NASA contractor at the time here in the United States, so I was traveling in and out all over the world from Berger on the oil sector side. And when you said he had this idea go, this is not a stupid idea for a brother. So I go, let's have a look at this. And so the idea didn't come from the ocean. It really came from a technology. Why are we building technology and what can we create? And I don't think all the technology we do it is just so that we can make nicer video games.

There's got to be something more fundamental about it. And the inspiration came, especially when I saw in the mid nineties that there was no such thing as a commercial summary. There was a couple of universities in the Navy, but you couldn't just go buy one

(14:30):

And you couldn't go cruise around. And that was like, this is not going to remain untouched because the world is changing fast. And the more you go into it now, I have to tell you, after a thousand dies on our sumps all over the world, it amazes me how little we know. And I don't mean nobody. You know how many times we've been underwater? The moment you go deeper than 300 feet underwater, nobody knows nothing. I mean, you make these pictures, you show these things, you go to the universities, you go to woods or they go to SC scripts. And so what is this? I go, I don't know. How can you not know? You're the guy that's supposed to know you're the biologist. And it is astounding how little, not just me, I'm just an engineer, is a humanity. Doesn't know of the moment. You go a little bit deeper, it never got the funding. It's not space. So it remains a big ignored area, which is more and more important to find out how the ecosystem works.

Mike Sullivan (15:42):

I mean, just the images I see on your website alone and some of the things you post on LinkedIn, I mean, it's beautiful. You might as well be in outer space because like you said, you don't know things that you never see before, right? I mean the one you go to a certain depth.

Charles Kohnen (15:59):

I have to say most, I still the biggest, the most fun part of a job is still diving, which is got to be, especially when you go in an unknown place and you go down a wall. I was in diving off American Samoa just a couple of months ago, and you just go down this wall with all the life it feels like you're exploring in space. It's not to that you've got these creatures that nobody knows what it is that come up. Some are big, some are small. It's just absolutely fascinating. And with the technology, the access in situ with, you're not just alone. You're not scuba diving.

Mike Sullivan (16:37):

That's right.

Charles Kohnen (16:38):

You're there with a group with people and you're sharing the experience as you do the dive. It's absolutely fascinating. And then come back with real results with new, we found a shark species unknown in French Polynesia like three years ago. They wrote a whole scientific paper about it. I mean, at the time it was like, I didn't know because we were down 2000 feet with the submarine and all of a sudden this massive shark, it must have been like four and a half, five meters long. It was big. It was like a big round. And it comes, we got 2000 feet. So it's pitch black, and it comes right in front of our big window and everybody goes, what is that? And I'm an engineer, not a marine biologist, but I can now tell the difference between a wolf and a bear.

(17:28):

So I'm looking at it, I was like, what is that kind of shark? So I start, and I didn't have time to set up the whole camera, so I just filmed it with my phone. And when I shared it to a friend of mine in French Polynesia in the diving industry, he gave that footage right away to the National Research Center, and the phone was ringing off the hook. Oh my God, what is my God? You made a discovery. And then the

day after that, the head director in France, Paris calls for more information. I wrote a whole report and they wrote a whole scientific paper of binding what they call, it's a prickly sharp. They knew the shark species existed, but nobody's ever seen it in the South Pacific. And it's like finding a zebra in Alaska. It doesn't make any sense. So they wrote a whole scientific paper and I got published on the discovery that we made purely by accident, by being present. And that's why our here with Sima, we specifically focus on manned or human occupied vehicles as opposed to just making other robots because there's only so much programming you can do and you're not going to remain. And I normally tell people, imagine you put an astronaut on Mars with a shovel. They'll do more in two hours as it going to take 10 years with robots, right? So there is still a valid proposition in going in directly and have a human assessment, a situational awareness and an assessment of what the environment has to provide.

Mike Sullivan (19:07):

So the first time you went into a sub, was it one that you had actually designed and built? Or was it before that?

Charles Kohnen (19:15):

No, the first time we started from scratch. So the first time we went in a sub, it was in the lake here beside our shop where there's a couple of ducks and 10 foot of water, and the water is completely green and you put it in. And the first problem we had, we had this thing, we launched it off a trailer, it wouldn't sink. So it's a problem. You have it. So if you don't do your ballasting, right, we deflated everything and it wouldn't go on the water. We need a lot more lead.

Mike Sullivan (19:52):

But I mean, when you've designed it obviously, and every nook and cranny, and there's obviously safety elements with this are they're endless. I mean, your checklists when you're designing this have got to be endless. But when you actually go in this thing for the first time and you've done tests, you've done probably countless tests when you go in this thing for the first time is, okay, we're going to 50 meters, 20 meters maybe, or 120

Charles Kohnen (20:18):

Meters meter.

Mike Sullivan (20:19):

Yeah. I mean, what's going through your mind? You're amazed by what you're seeing, but what's going through your mind

Charles Kohnen (20:29):

At that point? I was not concerned about safety because there is a proper way to do the engineering, to vet the, before you put anybody in this thing and start doing in situ, there's already a lot of process of vetting the engineering. So it's not based on hope, I hope. I hope it doesn't. It is not like that. So before we had anybody, actually, we did most of our initial tests, everything with externally. So we had a big bubble on this thing. Yeah, scuba diving, scuba diving gear, and taking this thing under water to just get the basic elements worked out. And then we actually have, and we still do. So now the haul, it's pressure tested in a big chamber before to over the maximum rating before you start putting anybody in there underwater. So my first real dive, wow, the first dive is in the lake where it's just green water.

(21:35):

It didn't really tell us very much when we first come, we went in the ocean. And that was really, it's already a year after a lot of prototyping. When the first year we went in the ocean, it was just the amazing how the surface disappears or you go underwater and you see it's like a takeoff in the reverse and you see the surface of the water rise above you. And it was so beautiful because it was a beautiful sunny day. It was sparkling with light. And I go, oh my God. I'd been dreaming about diving in our bubble for soap by then already for three years before you actually could do it. And my first intent was how beautiful it was. It was just visually really pretty to see the water glitter above you. It was very pretty. I wasn't concerned about the safety because the process, because there was so much vetting along the way,

Mike Sullivan (22:34):

It had to be so serene and peaceful.

Charles Kohnen (22:38):

Well, I think I was too excited to be serene. By the time you go on the water the first time, serene is not the first thing that cross it. What actually people do when you take 'em under the water is that for the listeners who haven't seen the picture, the sub looks like a big transparent bubble. Yeah, that's fair. It's not glass, it's made, it's a sphere and it's made out of acrylic. It's not a glass sphere. And the material has the same refracting index as seawater or very close. So what happens is there's no refraction of light through the wall. And the moment you go in the water, it just seems to disappear. You don't see it. Wow. So when you're sitting there, purple's first reaction is like touch, try to touch the wall. Where is the force field around me? Why am I not wet? Right? And so everybody's first reaction is really to reach out and try to find where is the wall because you don't see it. And it's not the first reaction, it's just the appeasement. You have sensory overload the first time. Oh, you go, you have to do it quite a few times now. I used to scuba dive before submarines. Now I'd rather just get my cup of coffee, go in the submarine and let's go find some fish. It's more fun than scuba diving

Mike Sullivan (23:58):

Back up here on the surface on land, we are hosting the 2025 Utility Safety Partners charity golf tournament, September 9th, 2025 at the Hamptons Golf Club. We'll be promoting our event, but also supporting BC and Alberta Guide Dogs, an organization that breeds raises and professionally trained guide dogs for individuals who are blind or have low vision autism service dogs for children with profound autism and their families. And it's really an amazing organization that we're proud to sponsor. You can go to our website now, utility safety.ca, and under events you'll find the tournament you might wish to be a sponsor for the event. We welcome that as well. There's still some sponsorship opportunities. And if you just want to register your foursome, come on out. Have a great day of golf, a lot of fun and a fantastic dinner while we host everybody at our Republic inaugural golf tournament. So when we lived back in Quebec, I mean we had the St. Lawrence Seaway, we had Lael on Saint til Air. We didn't have a lot of bodies of water nearby. Did you ever do any scuba diving in Quebec when we were young

Charles Kohnen (25:16):

Or no? No. It was made during my years overseas.

(25:21):

So I did quite a few years scuba diving around while I was working overseas. And then it turned out to be helpful, especially doing the prototyping part of it. And yeah, I mean now I by far prefer doing submarine diving because now you don't have to look at your watch, you don't have to look at your depth. You don't have to look at the tables. You just hang around for a couple hours. And now we have sound system. You have a beautiful bow sound system. You put this music on and you go and look at the fish. It's fun stuff.

Mike Sullivan (25:53):

So what kind, now you're building these submarines and you have different categories, the personal, and then I gather you have commercial and then also defense. What kind of person buys a personal submarine? I mean, the list has got to be very short,

Charles Kohnen (26:15):

Right? Actually the submersible sector, there's three main companies in the world now after us. There's another company called Triton Subs. They're based in Florida, and there is a U-Boat subs. They're based in the Netherlands. They all came about 10 years after us. The reason they come up, and I'm happy there's competition because it builds a critical mass on the market

Mike Sullivan (26:41):

And improves the market too.

Charles Kohnen (26:42):

Right? And what happened, our first submarines we started, the first one was doing tourism and science. So the first few subs were scientific projects and tourism project. And what happened in the mid two thousands, the private big yachts got bigger, bigger and much bigger. And all of a sudden you had billionaires. He says, yeah. They're like, man, I wanted to do my trial drill, dream of driving my submarine on the water. And now their ships were big because subs are not necessarily very big, but they're heavy because of the displacement. They're heavy piece of gear. So I remember the first billionaire client who called me was a captain, and he says, yeah, I got my boss. He wants to put a submarine on his boat. This is in 2005 I think. And I told him, you want to put a submarine on his boat? How big is this boat? Oh, it's 80 meters. 80 meters. What kind of boat is this? So then I got very quickly acquainted with the whole big mega yacht side of the industry. And so they have pushed forward demand sub market because then there were starting to be, the votes got bigger and bigger and bigger,

(28:04):

But they actually could put another toy, as they call it, onboard the thing. So that's where we saw some of our competitors start creating companies specific for that market to make to help the luxury yacht side, which they're never large numbers, not at least there are hundreds of them. And I think just to put some clarity in the submarine world, there's about 200 commercial subs in the world today that are not military. It's about 200. And there's been more subs being built the last 15 years than the 30 years before that. Most of that for the private side, from the private side, which usually have a dual agenda, a lot of 'em will do. They'll have a philanthropic university, they'll donate time on it. And there's a multifaceted aspect to it, the citizen science aspect, all of the subs on these big boats, because what happens, the big boats, the luxury boats with all the equipment have can add a lot to the observations and the data gathering.

(29:22):

So those are the big private yachts tend to be on very, very large boats. And then the next part, our research, we just delivered to National Geographic to pristine seas. National Geographic don't just do documentaries. They actually do science also. They have an environmental science branch called Pristine Seas, and they are expanding the number of underwater habitats in the world. So what they do is they go to various islands, study what the underwater habitat statuses and give a recommendation where zones should be protected to help recover the ecosystem. And then they also try to convince the other state to actually do something to actually create the habitat because just writing another white paper is not going to do much change. And so they're proactively getting head of states to actually go and create the habitat from their study. That's where the sovereign comes in because now they use the subregate job we built for them. That helps with the science among other technology. But then the tape, the president or the head of the vice president to take various ministers and take 'em in situ and actually show and that they were the summary. And that helps them convince to actually make a change because you can only convince somebody so much looking at your iPhone, oh, look at this. It doesn't impact the same way as going in situ and have an overall look as to what the situation

Mike Sullivan (31:01):

Is. That was going to be one of my questions actually. You've been going underwater now for better part of 30 years. And from a climate perspective, in that time, I mean it's a very, very minuscule amount of time, but have you seen any changes for better or for worse beneath the surface that are really contributing to the narrative we have today with about the climate?

Charles Kohnen (31:30):

I can say without reservation that I'm not the only one who's seen the change. Lots of people have that are industry. There's definitely a warming up mean it's crazy. I mean, we were at, because we measured the temperature on these Ds, right? And we were, was it were at in Samoa just two months ago, you're in 300 feet of water, a hundred meter of water. It's 30 degrees Celsius. 30 degrees Celsius at a hundred meters. Yikes. That doesn't even compute. I mean, so it's crazy, crazy warm. And it didn't use to be like that. I mean, back in the early nineties it was even close to that. So the change is much more than you would think on a significant depth too. And because if it stays that hot, the temperature is by far the biggest culprit for the ecosystems because it changes without being a married biologist. But I know enough to know that the change in temperature is one root cause of the change of the dynamics on where the species and what can flourish. And you've seen it for sure. There's no question about it. There's no question. So the warming up, I would say is a serious aspect that we find.

Mike Sullivan (32:53):

And you're seeing that all over the world or just in certain areas and all over the world? No,

Charles Kohnen (32:57):

It's everywhere. It's everywhere. I mean, it's where we dove actually. But yeah, I mean, we have been in places where it was, the water was much, much more polluted than I thought I would ever find in a Caspian Sea found the water in the South Caspian Sea to be very, very, very polluted in depth. I've never seen so many dead fish on the sea floor. But there's no environmental policies in the region tend to be more and more, they have other challenges. So they're not focusing on environmental policies. And you can see the difference. I mean, for sure. So there is no question about it that the work of the preservation of actually doing something is an important aspect, but then it's like there's ways to do it

right, and there's ways to do it wrong. I don't think it's the question whether there is a change, not change is what's the best approach to mitigate is really a discussion.

Mike Sullivan (34:02):

And without people like you and seeing all this for the first time, beginning roughly 30 years ago, we wouldn't know. We would be at the mercy of perhaps the military telling us what they observe and how the media works today, whether it's social media or whatever, nobody knows what to believe it seems. But when you hear it from somebody or somebody like yourself, it holds a lot more weight,

Charles Kohnen (34:35):

I think, to be impartial because I don't have an agenda on making things look worse than they are. I think there's lots of people doing good work trying to make sure there's both a public access and public outreach to it, to also real science. It's too easy to get too fluffy and then it's not helpful. It's important to get hard numbers to do pragmatic solutions. I believe it should be pragmatic about it. And there are stakeholders is everybody, because the implications are pretty big. So our small company with the little sub, they're just another hammer in the tool of what the scientists and these people have access to it. We don't do that much military, but we have done, because we're not a military base company, what we have done is we have done a few projects with Coast guards mostly for search and rescue.

(35:36):

And depending on the country, the Coast Guard falls onto the defense department. But they're mostly, we've done a big project in Argentina, in Patagonia because for the lakes, they have very, very deep lakes in the Patagonia. I mean, they're 500 meter deep lakes, but they're very high in tourism. There's a lot of skiing and visitors. So the Coast Guard is a, I mean, cannot send a shit up there and send a robot an ROV. In fact, I don't have the means, the infrastructure for that. So we built them, the one of ourselves that can back it up like a regular boat, so all of a sudden they can access deep water by just backing the man sub and go to investigate the crash site. So we've done a few of these different Coast Guard projects mostly for recovery and investigations. So as opposed to defense. But it's helped. It's worked well. So we have some of the scientists, we have some tourism, some of the coast guards and the research side, and then a couple of private guys.

Mike Sullivan (36:43):

So you mentioned you helped discover a new species of shark, for example. What's something that, did you ever have one of those moments where you're underwater and you think, oh my God, I don't know if I should be here right now, or this is just way too much to absorb? I mean, how many dives have you done?

Charles Kohnen (37:05):

Like I said, close to a thousand,

Mike Sullivan (37:08):

And each one's got to be at least

Charles Kohnen (37:10):

An hour or two or three, right? Right. And then sometimes you go in the water and all you find is mud, and sometimes you go in the water and it absolutely blows your mind away. It really, it varies so much.

It depends where in the world. So there's a lot of technical dives or training dives, and sometimes it just blows your mind away. I remember I did a dive in Australia where at a shipwreck, and we found it, it wasn't that deep. It was like 200 meters or so, and the shipwreck schooner from 1867, God, they knew about it. They didn't know exactly where it was. And the water was so clear when we found the wreck, it was laying on its side with the mask still there. And I tell people it's as if Disney. Disney, you ask Wal Disney to make a ship wreck scene, that's what they would've built. It looked exactly like that. It was crazy because there was so much sea life now around it. It had built such a great sea life and there was a bunch of sharks around it and massive 30 pound lobsters all hidden around it. It looked fantastic. Amazing. And we just cruise and because now in such clear water with the sub, it's like a helicopter. You're just flying around the scene. It was just fabulous. Absolutely fabulous.

Mike Sullivan (38:33):

I saw one image on your website, it looks like you're following a whale shark. And where was that? Where was that?

Charles Kohnen (38:40):

That's in Costa Rica. And actually the whale shark didn't care. So you're following the whale shark and about an hour driving above it and below it, and the whale shark didn't care. And then eventually it went away, and as it turned to go away, it just brushed us just slightly with the tail and the whole sun pushed sideways just because they're so strong and so massive. Massive,

Mike Sullivan (39:04):

Yeah.

Charles Kohnen (39:04):

Yeah.

Mike Sullivan (39:05):

And you're a visitor down there. You don't belong down there, right? Yeah, that's got to be, I can't even begin to imagine what some of the things,

Charles Kohnen (39:15):

Most of the time what you want to do is let nature come to you. It's not about chasing sharks or whales. It's usually the best is you quiet down, you come down, you shut off the lights, make it just and let it sit. And all of a sudden you'll see the sea life gradually get back to normal. Because when you show up, you're like a big UFO landing in the zone and everything runs away. So you got to shut off the lights set up and just keep the minimal presence, and then you'll see it come up towards you. And I remember we had this dive, we were, and it was in Costa Rica, now we're talking about it. We're going down this wall, and it was the first dime off a Coco's island, which is off on the Pacific of Costa Rica. This is the aisle of the dinosaur movie.

Mike Sullivan (40:08):

Oh, okay. Yeah. Which was apparently is a true story though. I mean, it's a documentary, right?

Charles Kohnen (40:16):

Well, anyway, so we were off going down this wall and nobody had been deep, and we followed this wall down, and then we went about 500 meters, something like that. And we found that at the bottom there was this strange creature with a big round head and a tail like an eel, and it had tentacles, jelly like tentacles on its belly that were translucent and big white eyes. And I go, what is that? So we start filming it, and as we came back up the cliff, all the wall, about 600 meters because we had 500 meters, you pitch black, you lose light about 200 meters, it'll be completely

Mike Sullivan (40:56):

Dark.

Charles Kohnen (40:57):

And as you come back up, we saw the top of the cliff and the blue light welcoming you back as we're coming back up into the sun. And you saw the light, and as we saw the top of the cliff and we come across, and then there was eight big manta rays that come swimming over the cliff, like big angels welcoming us back into the light. It was like amazing,

Mike Sullivan (41:22):

Amazing. I can't even begin to imagine the experience. I'm just hearing you and you've done a thousand of these and yet you're telling me it happened just yesterday the first

Charles Kohnen (41:32):

Time. Yeah, it was truly, sometimes there's mud or you find nothing. It is like, why am I here? But then other times, and it just can't believe it on some of the scenery also, it always amazes me how we see so much more with our eyes than the camera. Oh yeah.

Mike Sullivan (41:57):

Well, you have that whole view, right?

Charles Kohnen (41:59):

You're not just a lens, even with a 360 camera, it doesn't work. It's just not, or the feeling of the side. It's just what you actually see. The minutia that we pick up of when you come close to a wall or to a reef and you look at it, we have an operation in the Maldives. They do tourism there. You can try the sub out. And every little reef has 50 species everywhere. They're all a small one. But there's so much activity on every little reef, and you film it and you look at it and it's nowhere close to what your eye actually observes. It's incredible. And then I think it's an important part that we don't forget at the init observation. It's still an important part of what we need to understand what's going on under the water.

Mike Sullivan (42:49):

So Charles, you're either 60 or almost 60 like me, and you've been doing this for 30 years, you're probably not going to be doing it for 30 more. But this isn't a job. This isn't a profession. This is your passion, your life. You've absorbed this with every element of your being. I'm sure. I don't think it's just from listening to you, and I know we haven't connected in 42 years, but just from listening to you, you're not done. What's next for you and for cima? You're going to be doing this for a while.

Charles Kohnen (43:26):

Yeah, I am certainly not done good. No, no, we're not done. The plan is not to retire in five years and do something else. If I was doing something else, I'd be doing this. So no, I think I'd like to see more public access. So I think we are coming up with little bigger subs with more capacity. There is a trend for on the subs to go and have that public outreach at resorts at different sites where it can be done responsibly and be able to set up larger submarine and be able to give them to different sites around the world where people can try a map. So I think that there's a trend in that direction without it being another bus. It's not that. But I have the intimacy of the experience at various resorts around the world is I think what we'll see, we'll see 'em more on the cruise ships also, so that the cruise ships, they just started doing it to be able to do a more experienced driven leisure.

Mike Sullivan (44:40):

Does that concern you at all though about once it starts to dilute a little bit, I guess there's more subs out there, there's more users, there are different uses from a safety element. Does that concern you at all that more users, I guess that the element of control from a safety perspective starts to get more challenging?

Charles Kohnen (45:04):

Well, from safety perspective, the biggest thing that happened lately on is this whole Ocean Gate summary that imploded over. So it had a big effect. And I mean, it's a small, the industry is pretty small, so everybody knows everybody. And my brother and I had written a letter to two Ocean Gate in 2018, the tell to cut the crap because, sorry, but to stop it because they weren't following any of the safety practices and we knew what they were doing. And then we told 'em, look, I mean, you have to be more clear because there's a risk of a catastrophic failure. And we had 30 people in the industry actually sign the letter so that it wasn't just two people bitching about it. It didn't help. But it certainly had a big impact that, look small industry that's much more to aerospace than it is to boat building. There's a lot of code, there's a lot of regulation. And if you just throw everything, oh no, I'm going to do whatever I want and leave me alone, it can lead to really serious problems.

Mike Sullivan (46:17):

But it speaks also to regulatory governance. I mean, ocean Gate was continue to operate. Who is regulating the industry?

Charles Kohnen (46:26):

Well, look, we've been doing, as being one of the first company doing this, there's been an uphill battle in getting proper approval. It's not so straightforward, but you can do it if you do it responsibly, if you do due process, I don't want to do and go so much in the Ocean Gate thing. But there is, it's a small niche market. So every time you go to a country, everybody wants to know, okay, look, how do I know this is done right? On the baseline, we work under, our vessels are classed, which is a formal approval by, we work on the American Brewer shipping, which is a classing society, and there's 10 of them in the world. The main ones, the five main ones are in Europe, Veta, the French one, there's American Bird shipping. There is DNV in Norway and Germany. So these are all been around for 200 years plus on maritime code, on how a maritime vessel should be built and tested.

(47:36):

And there is a code for submersibles, how they should be underwater vehicles, how they should be built, how they tested. So each run that we build has to go through all the process. So all the material

traceability, all the material testing, all the welding inspection, there's all this inspection as each one is built and all the functional testing. And then we do all the C trials with the surveyors and they sign off on it at the end of the full process. And it takes us a year, a year and a half to do each one. So there's a lot of testing and everything is tested. Like I said, we put the sub in a big pressure chamber, test 'em above the rated pressure. These are all things that Ocean Gate, not a day because they don't want pay for it. They didn't want do it. So there's a whole regulatory, so we work under class society, like the American Bureau shipping or gl.

(48:37):

And then there is the whole aspect of pilot training because the safety, because your whole program is on safety. Look, the safety has designs safety built in the design of these manned vehicles. Then there is the safety of adhering to international standards, which is the role of actually getting them approved through regulatory standards. Then there is the training of operators of making sure that there is a due diligence and process of training the operators. And then there is the making sure the discipline of a training is actually implemented every single time. And that's where we developed our training here in the US with the Coast Guard back in the late nineties, because our first tourism operation was in California. It's not there anymore. But at the time, it was our first sub and we put it, and the Coast Guard first came to us. It was, oh, you're to drive this little summer and you meet a hundred ton captain's license.

(49:44):

Well, that's crazy. That doesn't make any sense. But that's what they had on the book. That makes no sense. So we spent a year with the Coast Guard on developing a curriculum that they thought was reasonable for the operation. And that's been the baseline of our training program. So now we have a training that each submersible we deliver have this whole training that we've, the premise wasn't just me sitting at my desk coming up with best approach, but actually a lot of stakeholders in the initial development to something that has worked well for us. And now since Ocean Gate is a larger discussion for the industry, since there are more subs as to how's everybody doing?

Mike Sullivan (50:26):

I'm actually drawing a lot of similarities, and maybe you did too from your oil and gas experience, but I'm drawing a lot of similarities to the transmission pipeline industry where I worked for a very long time when I was with the regulator here in Canada for transmission pipelines and National Energy board. We would get delegations from all over the world, come to Canada, come to Calgary to meet with us, to meet with industry here, whether it was TC Energy or Enbridge or the big organizations, the big companies that had the resources and really were setting the tone for and the requirements, whether it was through CSA standards or whatever for pipeline design, construction, operations, maintenance. And Canada is world renowned for doing that and being a leader. And so as you're mentioning that the governance and how safety has improved over time, I am drawing those similarities and we're talking pressures. We're attacking maximum operating pressure testing to 1.25 MAOP or whatever. So yeah, I get it. But I mean, when you start thinking about these two things, so separate, we're transporting hydrocarbons versus transporting humans into a new environment that they've never seen before, and yet a lot of the same ideology or same thinking goes into the process. It's interesting. Well,

Charles Kohnen (51:57):

I do a lot of the training still. I go on the site because there is, especially when it's a brand new setup. So the engineers, our engineers will go and help set up a new sub on a new ship and do all that. And I'll go

in with a team of instructor, and I usually supervise the initial training because whether you go 20 meters or a thousand meters, it's still always very, very, very important. The nature of subs on the water, because it's more like space and it is airplane.

(52:32):

And so to make sure that you implement a protocol of operation is very, very, and make sure they understand that everybody, the operators and the crew understand the seriousness of what they're doing. And when they do it every day, everybody starts getting a bit too, oh yeah, oh yeah, I'm just going to quickly do a 500 meter dive. No, no, you have to make sure that every checklist is done, that all the checks have been thoroughly. And the thoroughness and that discipline is important to teach because the safety, there's only so much safety in the design. There's only so much safety in the code or in regulatory. You still have to make sure that the operators,

Mike Sullivan (53:17):

The human element.

Charles Kohnen (53:19):

Absolutely. And make sure that the system itself is the what? The safety, it's all of them, the training, the operators, the regulatory, the design, all part of it. And it can be done well. I mean, right now we've got over 13 and a half thousand dies on our subs. So it's not necessarily all very deep dive, but it's a lot of duty cycle. It's a lot of times if everybody had to do all the checklists, get this thing on the water, make sure everything was okay, and we have a perfect safety record in 13 and a half thousand dives is important. Milestone. And just to make a point, ocean Gate, we're on dive number 13, not 13 and a half thousand. So there's a way to make sure that the due process, or at least the safety protocols that we put in place do work. And they do work in general as whether it be in pipeline or whether it be summaries or whether it be at the airport. Airline safety is safer now than it was 40 years ago. And the safety protocols that we put in place, they do work.

Mike Sullivan (54:36):

Sure. No, this is, I can't thank you enough for doing this, Charles. I mean, beyond seeing you again and getting a chance to chat with you, I wish I was close by. I'd come by, we'd do this in person, but who knows? Well, you have to come to California and actually go in one of the subs. I would be so tickled to do that. I can't even begin to imagine what that would feel like. But maybe one day I will. And if I get out there, and I will definitely let you know I'm coming. I have business contacts in the work that I do in California and around North America. But yeah, if I get out there, I will make a point of letting you know, and I'll have to bring Julie with me and

Charles Kohnen (55:20):

Wonderful.

Mike Sullivan (55:21):

Yeah. Just as you know, Julie and I are still an item. That's

Charles Kohnen (55:26):

Amazing. Like I told you, I find it only happened in the movies. Somebody marries his high school sweetheart. Is that for real? My God, that's crazy.

Mike Sullivan (55:37):

Oh, yeah. She's taking care of her grandsons today. We have twin grandsons. That's cool. Yeah, so we're very, very lucky. But again, Charles, thank you so much for doing this. This has been fascinating by far, the most fascinating episode I think we've ever had. And take you right. Congratulations to, but to stay in touch, it doesn't need to be

Charles Kohnen (55:56):

40 years. Keep in touch. Keep in touch.

Mike Sullivan (56:03):

That is going to wrap up things on this episode of The Safety Moment podcast. I first want to thank Charles Cornyn for joining me today and for all of you for joining me on this bit of an offshoot journey of the podcast, and of course, our producers stories and strategies. And I hope you choose to follow this podcast on any directory you're listening on. And please do leave a rating. You can follow us on X at utility safety. We're also on Instagram and Facebook and LinkedIn. And if you'd like to send us a note, maybe you have an episode idea, maybe you want to learn more about this episode or any other episode that we have, just send us an email to info@utilitysafety.ca and put podcasts in the subject header. I'm Mike Sullivan, the president of Utility Safety Partners. Click to know what's above and below. Well, not under see yet, but on the surface anyway. One click costs you nothing, not clicking. Well, that could cost you everything.