"If Oceans Could Speak"

Episode 1 Transcript
Thomas Wunderlich and Felix Lauber: Anchored to the evidence

[00:00:00] **Thomas:** I think if the Polarstern could tell stories, they would be much more than one book. She is an institution. She is, she's an institution of research work in the polar regions. Worldwide, she has a name.

[00:00:15] **Jen:** Welcome to If Oceans Could Speak. The podcast that listens to the oceans through the personal stories of those who share their life with the sea around them.

My name is Jen and with my co-host Stefan, we're going to be chatting to the people behind these unique stories. We hope that our conversations will not only intrigue, but will inspire you to reflect upon your own unique ocean connections.

[00:00:37] **Stefan:** And this episode, we will look at the Arctic Ocean and we're happy to welcome Thomas Wunderlich and Felix Lauber captain, and first officer of the research vessel.

Polarstern the German polar research vessel that undertakes scientific expeditions in the Arctic and then the Southern Ocean every year, since it's commission in 1982. Welcome to both of you, Thomas and Felix.

[00:00:59] **Thomas:** Thanks for the invitation. Thanks. Thanks a lot. Yeah.

[00:01:04] **Stefan:** Great to have you on board. The first question to Thomas, Thomas, what spurred your interest in the ocean and the Polar Regions.

And how did you come into your current role?

[00:01:15] **Thomas:** Yeah, it's was really an ordinary way. I did a study for navigational officer. And after this study, I started on a merchant vessel on a

container on a container vessel. And during this first cruise after the study I was thinking about, so that cannot be the end.

And during this time it was 2004. We had already had research icebreaker Polarstern in the management of shipping company. And I asked, you know, personnel department is there any chance to go in this to, to have Chance to work on Polarstern and like this sometimes if you're on a, on the right time, at the right place it was so, and since the 2004.

I was a shipmate on Polarstern and it was the first cruise there. Very, very fascinating. It was a very interesting cruise to the Antarctic and what you have seen there, gave me a picture of the world to try to understand how the world was, how the function of the world that was Antarctica, for the first time, like, like an Explorer and to be there.

And yeah, it just was the first way, or as a first step in, in the, in the research on a research vessel. And I asked the personnel department to stay down there, if it was possible that I could stay. And then the classical career up to the captain there and since all these years I'm still happy to be there and to be a part in this research work and the experiences to give also to the scientists, a better end economic way for the, for their research works.

[00:03:07] **Jen:** Great. It sounds like you were hooked from the beginning, from your very first cruise.

[00:03:12] **Thomas:** Yes. So, what we have recognized is that there are two types of colleagues here.

So, the colleagues which are the first time on board, so on the one, one side, they like it, and they want to stay or on the other side no, this is not my way for the, for the future to work with the scientists or the cold area or to, to handle the ship in the, in the ice, and so, and yeah, I would say that.

[00:03:38] **Jen:** Great and I'm wondering, Felix, it can't be, it can't be an easy job. It must be really hard. And I'm wondering, what's your favourite part about your role and what is it that keeps you going back to, to the polar regions?

[00:03:53] **Felix:** Wow. So first thing is really it's, that is absolutely correct. It was with me, right the same.

So the first cruise kind off addicted me to the, to the Polar Regions. And this is also what keeps me going. So my favourite parts, my favourite part is the collaboration, the collaboration of approximately a hundred people on board. So my ship's crew, my tech crew, the catering, the engineers, the electronics department with a lot of working groups from their scientific department to make, well, almost everything happen to try and well figure out what we can do during the cruise to make science happen. The amazing step is, well, as for me is not the departure from the port it is as soon as we enter the ice. So as soon as our good old lady is in her natural habit. Yeah. That is what keeps me going.

[00:04:56] **Thomas:** And for Felix and me, as I think I speak, also, with his opinion. So, we know the departure date and the arrival date and all what's happening in between it must be planned from day to day. So especially when we are in the ice, so the nature and the ice can make some Alliance through all or everything.

And so that, especially also the chief mate, Felix, has to re organize the scientific plans and also we have daily discussions of what we can do today, or what can we do tomorrow? It gives special atmosphere that you have to reorganize yourself and the vessel from day to day, this very special.

[00:05:43] **Jen:** Yeah, absolutely. Thank you. And this is this, I think this is a really interesting perspective because we get to hear quite a lot about the science that goes on, on the expeditions, but less about the planning and the organization and the operations that it takes to make the science possible. Yeah.

Felix, can you, can you go into a bit more detail about what it takes to plan and execute the research cruise and in the harsh conditions of the Arctic, what sort of special adaptations do you have to make?

[00:06:11] **Felix:** I can do that from an operational view. So, definitely needs an open eye. So, you have to get along with first of all, the ice.

The ice may hamper the voyage or beset the vessel. The ice may also, well not be in favour for some scientific operations. Like it could be too thin if people want to work on the ice. It could be too thick. If we try to get through with the devices or with the ship, it might be too dense, too much pressure on it to deploy, for example, fishing gears, then we do have weather conditions we have to get along with. And so this well harsh Arctic climate with a low temperature with the possibility of top side icing and the low temperatures, which also affects scientific gears. So like electronic parts from remotely operated vehicles from AUVs or from drones, but also the ship.

So the ship is also affected by the low temperatures. Starting with the Polarstern at negative 30, where we really have to consider whether we use our cranes or not. And well reaching down to negative 50, which we never experienced, but at negative 50, we would really stop all our operations. We do have to get along with extended periods of darkness.

So, these darkness affects our flight operations affects our works on the ice. So as with a low visibility, it doesn't matter whether it's fog or darkness enhances the risks by polar bears, for example, or just well movement in the ice is also pretty risky when the, when the ice starts moving and you lose your colleagues on the ice, out of the site.

Well, as to where we do have our high latitudes, which a hamper radio communication, or also affect our navigational equipment, we have these what I personally absolutely love but we have the remoteness, the remoteness effecting the mood of the people affecting the availability of spare parts. Whatever we don't have on board, we will never get during a cruise.

So, we always have spares or also gears, double. So yeah.

[00:08:48] **Stefan:** You mentioned that you have spare copies of everything, double and a backup, Felix earlier called the Polarstern the good old lady.

Thomas, the ship is now almost 40 years old, but it's still very much at the forefront of scientific research in the Arctic and Antarctica.

So is there a secret to this? What makes her so special?

[00:09:09] **Thomas:** You seem you are right. She's almost 40 years old and this is very special in general for, for a ship and also for research ship. And Felix and me, we know this vessel for almost 15, 16 years. And we spent a lot of years there. We had also a lot of expeditions together and we had a lot of special situations together.

Which we have had to solve. And what we have recognized until to now is she is still willing. She is still willing to do ever seeing what we expect from her or the scientists. And it's really a special relationship like between persons, what, and in the beginning I couldn't believe this so that old sea men said, "it's my vessel" or "it's it's it's my ship".

And I think I speak also with this Felix opinion that we have a special relation to her. And what we what we are seeing is as well, she's getting older and we know she has an age where you have to have to work a little bit slower with her. So you see it in some technical things. And so, I think if Polarstern could tell stories that would be much more than one book.

And Felix and me would be, would be also only a, just a short chapter of that. She is an institution. She she's a institution of the research work in the polar regions. Worldwide, she has a name and this makes her very special.

[00:10:47] **Stefan:** Felix , you mentioned the operational side. How do you operate such as scientific research vessel in a very sensitive area, while also achieving aims, like minimizing the environmental footprint?

[00:10:59] **Felix:** That already starts with a, with a strategic phase, with the decision, whether these scientific programs are well, I will call it necessary or worth to do it. And they're are checked many times. And also from external institutions operationally, we try to minimize our footstep.

Definitely. For example, we reduce everything we emit. So starting with the lights. So in order to reduce the seduction of the birds, we reduce our lights we use during the night time, we reduce the amount of fuel as far as any possible, we have special treatment plants for our grey and sewage water. We do not leave anything on the ice.

No, well, no garbage for sure not, but also no food waste and yeah, just handle everything with care. One major point is to educate the crew and the scientists to contribute by their personal behaviour. So also not to approach mammals or well with also with research activities just to, to do whatever is necessary to get their samples and their results.

So technically the ship is still in a, in a very good shape. We do a lot more than, than other ships in the high latitudes with the purification of everything we emit and operationally, we are always aware of what we are doing and where we are.

[00:12:32] **Jen:** Yeah, it sounds like the environmental awareness kind of comes into almost everything that you have to do on the ship.

And we're hearing more and more about things becoming net zero or carbon neutral. I wonder maybe this is a question to both of you, but can you imagine what a polar research ship might look like in 20 or 30 or 50 years' time? And does that excite you or does it worry you or, or how do you, how do you think about it?

[00:13:00] **Felix:** Well, according to the propulsion system, there will be big steps towards green ships. Definitely whether it's a hydrogen or any other green fuel, this I think is a good step in the right direction. And I think we are not so far from that. So it's not 2050 we will have that. According to all the other things, let's say it will change.

It will be different. So science got more and more technical. Soa lot of robotics came on board deep sea robotics, aviation robotics, and with the increasing availability of good communication in the high latitudes we also have a trend to

remote science. Sowe do have a scientific stuff on board, but dozens more at home in the office who just connect to the ship and to the scientists.

As soon as there is something of interest and this will increase. Definitely. Soit might look like there is a polar research ship with a crew and maybe some technicians and a lot of scientists at home who just get their data online and direct us where to take the samples. Could be. This will change polar research a lot.

Sowe're already changed. So it's, it's less by looking out of the window or this is what we call exploration, but more and more interested in detail.

[00:14:42] **Thomas:** To answer the question, how the planet goes in which direction this absolutely right. That we need details. And this includes this remote robotics, as well as if you get information that the ice gets thinner and thinner, I think as well, that is not a reason to make or to build up smaller icebreakers, or with less propulsion because the interesting thing will be in the future or in the close future, through regions of the old ice. So speaking from the Southwest Weddell Sea or north of Greenland and the region where you couldn't get a normal propulsion system and I think the icebreaker infrastructure, will be, will be increased as well. So from the, from the size and from the power.

And, and I think the, the nations recognize now that the polar regions have much, much more importance for the close future in any way or in any topic, even science, political things. So, but this is another question!

[00:15:59] **Jen:** Definitely! So Thomas, we can't have you on without talking about the truly remarkable MOSAIC expedition that the Polarstern embarked on last year, and just to give our listeners some background, the mosaic expedition was the largest Arctic expedition in history involving hundreds of crew and scientists from over 20 countries.

The aim was to collect a unique time series of data from the oceans to the atmosphere to help understand climate change in the Arctic and beyond. The idea of the voyage was I think quite extreme! To find an ice floe, trap the

Polarstern within it and drift around the Arctic, trapped in the ice for an entire year.

The ice floe was effectively turned into a small city on which the scientists undertake their data collection all year round. Thomas, can you give us a summary of this expedition from your own perspective?

[00:16:48] **Thomas:** So the expedition started on the 19th of September 2020 and ends on the 12th of October, 2021!

Sousually it was planned that the mosaic expedition was divided in six parts, six legs. And it started from Tromso and went through the East Siberian Sea and then they started with the cooperation icebreaker, Akademik Fedorov. And so, it was two ice breakers and they looked for a floe and you can imagine that was a real big discussion to find the real, the most, most popular floe.

And so, the main question was to find the right ice thickness, where you could think about which floe will have the stability for, for more. And they found this floe in the end of October. And then this started in cooperation with the Russian colleagues to install all, all devices. So, they installed different cities.

It was called "met city", "ROV city", "ocean city", and so on. And Akademik Fedorov supported to install stations a little bit further away from this floe also supported by helicopters. And I think it was in the beginning of November they started with the drift and they made the last supply with the Akademik Fedorov.

So, they get a new, new fuel and the last crew change was done, including scientists. And then the colleagues -so Felix was on this first leg- and they started in a darkness. So, the drift starts and at first it was a little bit confusing because the drift was not like it was like they planned. So, it starts to north and to south and to circle and nothing was happening really.

So in the middle of December, there was a let's call it a second supply by again, by the Russian colleagues Kapitan Dranitsyn. So completely crew changed, completely changed scientific personnel and again, equipment to the vessel,

fresh provision and everything what you need in the Arctic. And so, that was done through four or five days, and it was absolutely in the darkness and the drift continues.

And during this time, the drift starts to hurry up so faster than before. During beginning of February, the third supply starts again with the Kapitan Dranitsyn. And that was then a supply in the high Arctic. And this was really special, and at the heart, very up to Polarstern for the Dranitsyn, because of, it was a conventional propulsion system as no atomic icebreaker, and they had really problems to come through to the ice.

And there was also the discussion to interrupt this supply because the fuel come from the Dranitsyn was coming to the end. That is also a responsibility of the supply captain to take care of his crew, his scientists and also for the vessel. And but this Russian colleague the captain decided no, he will try it if he gets as well a supply vessel.

And so a third vessel started then with a fuel supply for our supply vessel and finally came through to a happy end, but this was five weeks, five weeks delayed. You can imagine. I think the question comes later, the human factor was the very hard part, then not the technical part, but the human factors. So in the history of Polarstern during all these years, I think Polarstern, came only two times in delay in the schedule.

So everyone was expecting that on the 28th of February a supply vessel will be there and to make an exchange and to supply. Yeah. Yeah the Polarstern was there, but no supply vessel and so the third supply wasn't finally until the middle of March successfully in the high Arctic and then came corona. So this now really a problem, because the fourth supply was planned for beginning, middle of April by airplanes, the airplanes were already charted.

And I had already made my flight tickets in the hand but yeah. So all the states closed, the airports closed the borders and finally, the prepared landing place for the airplanes were broken as well as through the high dynamic, due to the high drift with the ice, and then you can imagine everyone was looking, what can we do now?

And this was finally very special, all parts, all parties made a conclusion that we have to continue with the expedition because after half a year mosaic, it is like an ordinary expedition. You can reach only the goal if you proceed up to the end, to the planned end of mosaic.

And the new planning took place about five weeks or round about and then after, after the complete supply we returned to to the floe and yeah, we continue with the rebuilding of the scientific cities and continued with with the drift.

[00:22:29] **Jen:** That was such a fascinating account of what happened. You must have been so relieved when you saw the resupply appear after so much time.

And it must have been really difficult to have things like coronavirus interrupt everything in an already uncertain environment where you have to constantly adapt and adapt and adapt. So my last question on the mosaic expedition is So, I guess the scientist must have been really excited to have the opportunity to collect data that they wouldn't necessarily have ordinarily have the opportunity to collect - in winter, in the high Arctic for that full year. And I wonder what it felt like for the crew. Were they also really excited for something as unique as this expedition?

[00:23:17] **Felix:** Unique, definitely. This is an expedition, which will most, probably not come back, not in that manner. And it was discussed among the crew already years before it started.

So as soon as the gossip that there is something like mosaic being planned. The crew already started thinking about it because well, the, the, effort the Alfred Wegener Institute had to take to make it happen was hard to estimate or to understand for us. So in our opinion, it started, well, it started with a kind of inconvenient feeling.

Because we thought about leaving the port and being out there for well uncertain half a year, three quarters of a year in the harsh Arctic climate. Well, it was an interesting feeling. Let's call it interesting. As soon as the first plans

appeared, we couldn't really believe it. So like sending a supply vessel or supply planes all three months to the high Arctic is, is an amazing effort.

Finally, when the, when the plans were settled and this enormous amount of preparation was done. So really years of planning, I was feeling like a real expedition. Close to adventure because there were so many things you cannot plan and you cannot predict that was my feeling when we, when we departed

[00:24:49] **Jen:** A true Polar Explorer moment.

[00:24:53] **Stefan:** Thomas, you mentioned that you and Felix have been working on the Polarstern together for a long time. In those many years of operating in the Arctic, have you personally noticed changes in the Arctic in this specific environment?

[00:25:07] **Thomas:** Yes, absolutely. Even in Antarctica as well, you must understand that the Polarstern has every year - if you, if you take out the mosaic expedition - every year, expeditions and cruise lags in the same sea ice areas and what we have seen is that in the Fram Strait, or if you're going to the Weddell Sea in the south that the ice conditions are getting less from year to year. And what we have seen during the mosaic expedition, between legs four and five, and that was really horrible, that we could find ways to the East Siberian Sea, not on the usual ways on the ice edge and along, but that we could pass the ice through the old old ice areas with open waters.

So a couple of years ago, there was on the northeast side of Greenland, areas you did try to avoid this areas due to the thickness and the massive ice conditions. And during the last year, we found very very thin, melted ice floes, where you could pass through with not maximum speed, not maximum power, but you could sail through very relaxingly. You could calculate it your ways and on a direct way to the North Pole. Then for us, that was the East Siberian Sea, and this was on a negative side, very impressive. What's happened during the last years there. So yes, of course we have seen changes.

[00:26:49] **Stefan:** Seeing the Arctic is something that leaves a great impression on a lot of people who go in there for the first time. Having seen the Arctic

many times, having seen the vulnerability of this environment in the Arctic Ocean, does this also have an impact on your lifestyle at home, on your personal life?

[00:27:08] **Thomas:** Yes, but it came during the last years, I have understood life on the other way. So if you are seeing the problems at home, the ordinary problems, who has everyone that are really simple problems this has no connection specific to the whole system. And where you are thinking about they're coming on other problems and to take it a little bit more easier and don't make any troubles, which must not be, for this

I'm, I'm a little bit more relaxed. But I try also to explain to, to the people at home as well on the, on the, on the, on the ship that they have to go with open eyes through the world over the planet. And I try to move everyone to the ice regions because of, if you have seen it once, then you understand the life in another way.

And I'm thankful for this.

[00:27:59] **Jen:** Thank You for sharing that. I'm really interested in your relationship with the sea ice, because it is declining. On one hand, I imagined that makes your job easier and maybe it opens a lots of opportunities to go to different places and take the ship places it couldn't go before, but at the same time, the loss of sea ice is having such a profound effect on the polar system.

And I wonder, Felix, do you ever have a conflict of feelings there or is it purely seen in a, in a negative way?

[00:28:32] **Felix:** So the, the, the changes, the changes in in the ice or, well, in the environment, whatever. There are really beauties among them. So one of the most beautiful places I've ever seen on the planet is a collapsing shelf ice. And this is exactly what you just said. It's mixed feelings. It's really sad to see the collapsing shelf ice, but it's such a beauty for the eye with these rolling green bluish icebergs.

Personally, whenever I go up there, especially to the Arctic, there are a lot of new opportunities. Many companies use these opportunities, whether it's well passengers, or exploration or mining for me personally, as long as I contribute to the polar research, I'm pretty happy with what I'm doing.

[00:29:31] **Stefan:** One more thing that I think would be really interesting for listeners, especially with all these experiences and you just mentioned it's on one hand traumatic and sad to see it, but on the other hand, of course, it's this enormous natural beauty in the Arctic.

My last question to both of you, would be if you could share just one more thought about the Arctic ocean, something you'd like others to know what would that be?

[00:29:56] **Thomas:** That everyone understands that every nation is only a part of the whole system. And that we can be only thankful for that what we have and that our future is dependent on very, very other things which start up in the north from the climate there.

And I hope that all nations will understand even the other economic problems that the problems for, for the planet rise up from the North. And that I can only repeat that everyone should try to get a view on the, let me call it, ice, and its sensitivity for the whole system.

And then yeah, this, I try to explain that we are only a part of a whole system.

[00:30:46] **Felix:** Yeah, the Arctic is, or the changing Arctic is much more than than the sad pictures of starving polar bears or melting ice, but it really affects the global climate. So us in Europe a lot more, but it also affects with the process of freezing ice, for example, is one of the engines of the gulf current, which definitely affects not just the Arctic and not just Europe, but really the globe.

And not just as long as we don't understand, but especially as long as we don't really understand these processes we should really try and care for the preservation as far as it's still possible.

[00:31:27] **Jen:** I think that's a perfect place to end for today. So thank you so much for both of you for giving us such wonderful insights into the life at sea and this beautiful connection that you've had with the Arctic.

Thank you again. That's all for today. We've put a link to the mosaic expedition webpage in today's blurb. There you'll find lots more information, videos and some very cool virtual tours of the mosaic expedition and of the Polarstern, so do check it out.

If you liked this episode, please leave us a rating on whichever listening platform you're using. And if you would like to share your own ocean stories, connect with us using the hashtag. If oceans could speak. This podcast was brought to you by members of the EU4Ocean initiative and was made by the If Oceans Could Speak production team: led by Penny Clarke, co-organized by Arne Riedel and Anna Saito, and presented by Stephan Kirchner at me, Jen Freer.

From all of us, thank you for listening.