

Key:

**I = Interviewer**

R = Respondent

Unclear: [unclear + timestamp]

Talking over each other: [over talking]

**Welcome to IFLScience The Big Questions Season Three. With an exciting episode hosted by IFLScience team members Eleanor Higgs. She's here in a conversation with Polar Bears International, recorded live from the icy tundra of Canada.**

**I: So I'm joined for today's episode by Alysa McCall from Polar Bears International. Alysa, fabulous to have you with us. Could you start off by telling us a little bit about your job, your role and what you're up to?**

R: Sure yeah, I am the Director of Conservation Outreach and a staff scientist at Polar Bears International. Basically, it means I get to do a bit of science and a bit of outreach. So, learn about polar bears, talk about polar bears, I feel very lucky to have this job. I've been working with polar bears out here since 2010 and working for Polar Bears International since 2014 and this is one of our favourite times of the year. We are just outside of Churchill, Manitoba right now. I am on a tundra buggy, we like to call it our polar bear monster truck. We drive around at this time of the year on set trails in the wildlife management area because we know that polar bears are going to be here, and we know that because Hudson Bay has polar bears, but polar bears, of course, like sea ice. So, all through the winter, during the months where Hudson Bay is frozen over with ice, the bears are out there hunting seals. That's where they want to be, that's where their making their living, eating the seals under the ice. But Hudson Bay has what we call seasonal sea ice. In the summer, of course, it gets warm and that ice melts, so the bears have to come back onto land. This is part of their normal cycle, the bears are adapted to come back on land and they fast, they live of their own body fat, they eat a little bit of eggs and berries, but it's like us eating some jelly beans, you know not a big contribution. So, this time of the year, October/November, we are edging closer to winter, it's cooling down and the sea ice will be freezing up again soon, and the bears know this. And so we see this slow migration of the population here to the coast. The polar bears are coming in, they're coming in to wait along the shores, because as soon as that ice freezes up enough they're gone. Right now, most of the bears are hanging out, they're sleeping, they're walking slow, but they're curious, they're bored, they're hungry, they're checking us out. They come close, they come far, we're here to watch the whole thing and we're live streaming everything on multiple cameras we have spread around and talking to people, answering questions and just enjoying the bears.

**I: This is amazing and I think it's amazing that you're recording this podcast from the buggy so you're surrounded by the snow and the bears and everything. I think that's incredible. Moving a little bit deeper, polar bears are like the poster child for climate change and all of this sort of thing, so how are the Hudson Bay population reacting to our warming planet?**

R: Polar bears as the poster child for global warming is a bit a cliché but there is a really good reason for it and of course, one of the reasons is the bears are so compelling, so they do get peoples' attention. Another reason is that there really is extremely strong evidence showing us that these polar bears are impacted by climate warming and actually, where we are right now, we are in an area called Western Hudson Bay and this is one of nineteen different polar bear populations around the arctic, but these bears, because we're in Churchill which is relatively easy to get to compared to other parts of the arctic but relatively easier and again, we know where the polar bears are going to be. This is one of the most accessible populations that we have of polar bears. That means these are the best studied polar bears in the world and we have over forty years of data on these bears. At the same time, we have excellent sea ice data from Hudson Bay. This was the first population in the world where we were able to link changes in sea ice to changes in polar bear body conditions. We like to call these bears the fat white hairy canaries in the coal mine. They are telling us that as the polar bears see changes in the sea ice, they will be impacted and we will start to see that in other areas across the arctic, and we already have. Specifically, what we have seen here is that in the 1980's we had around 1,200 polar bears in this area. Currently, 30 years later that is about 800 polar bears, so that's a decline. We are also seeing smaller bears, we are seeing fewer cubs. This area used to be quite famous actually for triplets. Hudson Bay was very productive, now we see a lot fewer of those triplet litters. Basically, what's happened is as we are losing our thick sea ice, the sea ice – let's say the ice-free season has extended, so polar bears are spending longer periods of time on land than they used to, so three to four weeks and that is slowly increasing over time. This means during those weeks, they are losing access to their seal prey, so they don't have access to the high calorie blubber that they're adapted to and that's what they really need to survive, so less hunting and more living off their own body fat and when they are on land, they lose up to about a kilogram a day. If you can imagine that extending, that does take a toll. If you're a healthy adult male and you have a lot of options of different prey you can have because you're big and strong and you know the area, you can probably go a little extra while without eating. You will have a limit, but where we're really seeing the impact is on moms and cubs. If you're a mom, if you're a pregnant female, you're already at risk of going up to eight months without eating. These females come onto land about June, July. They'll be going into the dens right about now, they will be in their dens giving birth and nursing until about March when they come back out on the ice. That's about eight months. So we're already asking these females to do so much and now we're going to extend that by another month and even more in the future. We're seeing these females get closer to the threshold where it's so hard to produce cubs and then to get those cubs into adulthood. So, that's really where we're seeing the population decline, where we're not getting the cubs into the adult population of polar bears here.

**I: Gosh that's so fascinating, to lose a kilo a day for any species is so devastating and it's only to get longer. I think that's quite terrifying really, especially for the polar bears.**

R: These bears have adapted and polar bears across the arctic are okay living off their own body fat for periods of time, they're adapted to do that. There's these feast and famine cycles all over but it's when we start pushing these boundaries of what the bears have adapted to. It's

just so important that they get lots of seals and lots of blubber to put weight on in the springtime. We're just seeing them being pushed to their limits.

**I: Do you see changes in the seal population at all?**

R: That's a good question, it's something we talk about a lot. Seals are even harder to study than polar bears because they like to live under the water. We know that the seals will be impacted also by changing ice patterns, but seals that polar bears predate on primarily are ringed and bearded seals, which are both ice associated seals. So both of those species need ice as well. When we start to lose the sea ice, the seals might have a harder time finding places to haul out, their birth lairs are made of ice and if the birth lairs with their pups, if it's a very wet year those can collapse and the seals can have a harder time. Another thing we are seeing in Hudson Bay here is that killer whales have been coming in, in the last few years and that never used to happen. That's because ice is opening up. Killer whales usually can't be around sea ice because they have a dorsal fin. Arctic whales like beluga and narwhals do not so they can get through the ice but as the ice is opening up killer whales are coming in so now there's these poor seals have an underwater predators now where they used to just have the above water polar bear. So, that might have some interesting impacts as well. Seals are something we are monitoring. We actually, two days ago, it's kind of rare, occasionally there is a seal that will get stranded on land and the bears will get the seal on land, which we've seen that before in the past and we have seen the aftermath of it. Couple of days ago out here there was a seal that was coming close to the shore and we were watching a polar bear just walk along the coast and all of a sudden this bear, we got this all on camera, the bear just dropped down, we didn't know what was happening, and just ran towards the water and stopped and was watching the seal. Anyway, long story short, the polar bear never got the seal but for maybe an hour we watched the bear stalk the seal up and down the coast. Polar bears really do need to use sea ice as a platform to give them the advantage to hunt the seal. Very hard to hunt a seal in open water, but man, that polar bear watched that seal. That seal was taunting the bear for a while. But it was so cool to watch that play out, we hadn't seen that behaviour before. We know it happens in the wild but it was very cool.

**I: That is absolutely incredible, that seal being just like, "Well, I'm not coming on land." And the polar bear not going in the water, just this battle between them.**

R: If I was a seal and I saw a polar bear, I might swim away, but this seal was just teasing and just being silly.

**I: Just having a look**

R: Oh yes, exactly, that's what it was. It was quite confident. It was pretty funny.

**I: I'm really fascinated by your big buggy and all the tech that you guys have. Can you tell me more about all your data?**

R: Well, this year we are primarily doing education outreach, but to even do that out here, it's tough and my fabulous team here, especially BJ and KT. They're the one's that are making this work, but we do have a massive antenna on the back on buggy one, massive, and it's getting

the Wi-Fi from the town of Churchill. We can do that because the tundra is flat, so we can shoot internet out across the tundra and then grab it with the antennae luckily. So, our connection is amazing. It's taken over 10 years to get to this point, so a lot of work but we do have a few cool things also going on. Again the polar bear cams, we do have a cam on the buggy, it's right here, so we can drive around, find the best action and live stream to anyone around the world that wants to get a glimpse of these bears. It's super cool. We also have a few other projects going on. One in particular is this radar project. We are increasingly working with the idea of human-polar bear coexistence as these polar bears are spending longer periods of time on land, they're getting hungrier, they're maybe more likely to come into communities in search of food. How can we keep communities safe and keep the polar bears safe and in the wild, so safe and separate. What we need to do is give the communities a lot of support. There's a lot of different options that we can help with but one option that would be good is just an early warning system. So, if we can detect a polar bear before it enters town and give people time to get inside and get away then we have a better chance of keeping people safe and keeping the bears in the wild. So, this radar system, we training it, but we're basically teaching what does a polar bear look like? If we can train this radar to know what a polar bear is compared to say, a human on a snowmobile, or a dog, or even a rabbit then it can let people know. It can sound an alarm, it can turn a light on, it can text message an officer or something like that if it sees a bear coming in. So, we're also testing that out here this fall and continue to refine that work.

**I: That's incredible that you can train them to recognise what a polar bear looks like, and that's done for the protection of the bears and the people as well, presumably as they spend more time on land and come into contact with people a lot more.**

R: Exactly, yeah. We need to be able to offer a variety of different tools, low tech and high tech. There are communities all across the arctic. Everyone has a slightly different geography, different sea ice patterns, different relationships with polar bears. It's all different but if we just have a variety of options that we can help support communities with and they can choose what works for them or develop something else then we have a better chance of keeping the people safe and protected, and keeping polar bears protected as they spend longer periods of time on land.

**I: Incredible. We should also mention as well that as we're recording this, it's polar bear week.**

R: Oh, it is polar bear week, yes. We celebrate polars bears all year for us, and then particularly in the fall but then there's one week of the year we do this extra push. We know we're going to see polar bears this week so it's just one of the best times of the year to really highlight the work we are doing and just how incredible the animal is. We've got live events all week, we've got amazing social media posting loads of pictures and then we are highlighting our project, Detect and Protect. So, detect polar bears, protect people and polar bears and that is part of that radar system so people can check on our website and find a lot more about it and even ways to get involved if you're interested and just other parts of our coexistence work that we're doing. It's very exciting, we love polar bear week.

**I: So do I, it's incredible. Is there anything else that you feel like you should mention? What are people missing about the polar bears and the sea ice and all that relationship going on? What is the one thing that you wish you could communicate to our audience?**

R: I think the crux of it is polar bears are an ice bear. They're the biggest bear, they are the only marine bear, they're the only bear that relies on arctic sea ice. This bear cannot live on land long term. Without the sea ice we don't have the polar bear, but we can protect arctic sea ice. We know that actions we take today can keep sea ice in the arctic and polar bears in the arctic. It will take us moving away from fossil fuels and using more renewable energies like solar and wind on a large scale, and just as a society in general, moving towards this cleaner, more renewal future for the polar bear, but also it's about us. Our future is so shared with the bear, everything we're doing for them benefits us and vice versa and just a callout that COP27 is starting. Next week we do have people there representing us, representing the North, and then people all over the world. It's important that we have that counter-balance to the government officials that will be there and to really talk about these goals that we have that transcends borders and that, again, benefit everybody around the world. We need to all be working together to protect all of our future.

**I: It's so important to think that the polar bear is just an indicator and really the sea ice is part of a global problem that affects everyone, world leaders, you and me, the polars bears and so much more.**

R: Totally. We like to say that arctic sea ice is the Earth air conditioner, and it really is. It's so massive and reflective and cold, it helps cool our entire planet the way that the cycles work. So, when we lose arctic sea ice, truly, our global climate is impacted. So it's good for all of us to keep this arctic sea ice.

**I: Thank you so much for coming on our podcast, we really really appreciate it.**

R: Thank you so much for having us. We love chatting, especially in polar bear week.

**I: If people want more polar bear resources and to access the live cams, where can they find them?**

R: The best place is polarbearsinternational.org, but you can check out also, the live cams and more cams all over the world on explore.org, which is our wonderful partner and then our social media. We're @polarbears on Instagram and Twitter and we're on Facebook too. So check us out anywhere, anywhere you are we're hopefully there too.

**I: Amazing, thank you so much.**

R: Thanks so much.

***Thank you for listening to The Big Questions. Head over to iflscience.com for the latest and greatest science headlines. The music in this episode is credited to Audioblocks.com. See you next time.***

**[END OF TRANSCRIPT]**