Paul: As sea levels rise, coastal habitats will find it necessary to migrate landwards. But when human made constructions such as sea walls impede their progress, the habitats are squeezed, resulting in the loss of life sustaining environments. To lessen those impacts scientists are developing [00:00:30] solutions such as compensatory habitats to preserve affected sea life.

Hello, I'm your host Paul Thies. And in this episode of If/When, we explore the challenge of coastal squeeze and how it's being mitigated with Dr. Chrissy Mitchell, national principal research scientist, flood, coast, reservoirs of the UK Environment Agency, and Dr. Nigel Pontee, global practice leader, coastal planning and engineering at Jacobs.

So, Nigel and Chrissy, thank you both so very much for joining me [00:01:00] today. We're going to be talking about coastal squeeze, and it's a concept and a topic that I recently became familiar with. I don't know a lot about it, but I'm looking forward to learning more. And I know we've got two experts here who can really shed some light on what it is, why it matters, and what we're doing to mitigate coastal squeeze.

And so, Nigel, just to start things off, and for our listeners out there who might be similar to me, [00:01:30] who, you know, coastal squeeze kind of a new concept, can you tell us what coastal squeeze is?

Nigel: So our coastlines contain a range of habitats, such as beaches, sand dunes, and salt marshes. And those habitats are formed of some sediments, mud, sand, gravel, and also some vegetation in some instances that grows in that sediment. Where those habitats occur, the zonation depends on waves and tides and also the sea level. And on natural coastlines as [00:02:00] sea level rises, habitats can migrate further landwards to maintain their same positions relative to the sea.

But on coastlands that have been modified, then that landward migration can be slowed

The estimates of coastal squeeze losses have been used to set targets here. And [00:03:30] really that's to create new replacement or compensatory habitats around the country. So, by that I mean that once we've assessed them, once we understand where they are, we take that land area and then we compensate those habitats elsewhere.

And we've been really closely working with other organizations here in England, such as Natural England through estuary and coastal monitoring and assessment service. And really to get a really good understanding of [00:04:00] sea level scenarios and the sensitivity to intertidal habitat loss.

And by doing that, we're constantly refining those estimates of losses and gains. It's not all one way. And we get to understand more about coastal squeeze. And I guess in particular, what we've learned from recent research is there's no simple one cause of this habitat loss. And this will be the same all the way around the world, that these losses that have been observed [00:04:30] are due to multiple causes. And that makes it quite a challenge to assess just how big a problem it is.

So when you ask how widespread the problem is, in England alone there's, there's about 250 locations of between 0.1 and one kilometer in length where we think closer attention will really benefit the way we manage the coast there.

- Paul: Hmm. Interesting. So, one thing I want to pick up on that you said, [00:05:00] if I understood you correctly now, are there efforts to move habitats, move wildlife, and kind of relocate some of those, the biologies to other coastlines maybe in England for instance? Is that correct?
- Chrissy: That's exactly. That's pretty much it.
- Paul: Wow.
- Chrissy: So, if one area is squeezed where, for argument sake, the entire habitat is lost, then we will look as part of a scheme or something that happens in that area, [00:05:30] we will look to provide or compensate that habitat by building more of it elsewhere. Yes.
- Paul: Interesting. Okay, cool. Well, I think I want to pick back up on that here in just a moment, because I think that's very fascinating. I can imagine those life forms and that the habitats are very sensitive. So I'm sure it's very delicate work.

Now Chrissy, you recently have published some research that considers coastal squeeze. Can you tell us a little more about that?

Chrissy: Yeah, sure. So this research report was commissioned [00:06:00] under the joint Defra, which is our ministry, our gover

our rail network, rail, and councils, and universities. Brought them all together to try and look at really understanding coastal squeeze and providing a sort of standard approach.

So, you can find this research on www.gov.uk, and simply by typing "coastal squeeze" there. And I guess what's worth mentioning is that this project was really successful in a number of areas. [00:07:00] It was led by Jacobs who Nigel is, and, and supported by

This transcript was exported on Mar 15, 2022 - view latest version here.

And it's really important to ha

This transcript was exported on Mar 15, 2022 - view latest version here.

Chrissy: Yeah, I mean, I guess from government perspective, the overriding ambition of the environment agency is to leave the environment in a better place. And that translates to this as well. So, in relation to coastal squeeze, I'm hoping our listeners agree that this, we are looking to drive the restoration of the natural environment rather than continually compensate for it. So, it's important that we still have these habitats [00:24:00] and that. But really we've got to look at how we can best improve the natural environment.

And Nigel's done a really good job there of mentioning a very clear ambition of ours, which is for net zero carbon by 2030 here in the UK. And recent research from this same joint R&D program has looked at 2(n5(t)6(he UIA)1(hd5()60)7 3837(15)(9BT/F2 11 Tf1 0 0 1 164.33 596.17 Tr