



## **Will Millard**

Hi guys, thank you so much for joining me. I have just turned my toddler's playroom into a pond for you guys today. This is my fish tank right behind me here, and this has got all kinds of tropical fish in. But in front of me, on this table are three tanks from my ponds outside and they've got all kinds of cool creatures in and that is what we're going to talk about today.

My name is Will Millard. I'm a BBC presenter. I'm an explorer, especially in the South Pacific, and I'm a writer as well. So I write a lot about natural history, and fishing, which is pretty much my favourite hobby of all time. Today's talk really is for children, but adults are more than welcome to tune in as well and enjoy it because so much of what I'm about to talk about is about as an adult getting back to pond dipping and all of those cool things we used to do outdoors when we were children. But yeah, predominantly it is aimed at children probably in the primary age groups.

This is part of the Pontypridd Children's Book Festival which sadly I haven't been able to make this year because of everything that's going on. So I want you guys to try and imagine we are there today, that we're on the bend of my home river, the River Taff, that I'm in the memorial park with all of the grasslands around me. I've got this little desk set up with these tanks there and that we're actually on a lovely midsummer's day in Pontypridd, and not actually in my terraced house in Cardiff. Okay guys, let's get started ...

So this is going to be a celebration of British fresh water and it's going to end with a read from my book, which is *The Old Man and the Sand Eel*, and I'm going to read about the time I caught my very first fish as a kid.



But before all of that I'm going to introduce you to some of my friends here now starting with probably the most important one of the lot. You could be forgiven for thinking that that is just a fairly nondescript glass jar with scuzzy water and a little bit of weed. But if we look closely you can see that that is like a city of tiny wildlife in there. The first thing you can probably notice is lots of tiny dots moving around haphazardly. They're like water fleas. They're called daphnia. But if you get your eye, let it get in, you'll probably see as well you've got pond snails in here. This fellow up here, he's just sucking on the side: that is a beautiful ramshorn snail. There's other tiny little snails in there as well. Hundreds and hundreds of different species of zooplankton. There's water shrimps going around in the mud at the bottom. There's a few bloodworm in there as well. And that is absolutely full of life like you wouldn't believe.

The reason why I've started with this jar is because the stuff that's in here is the most important things that you will ever find living in a freshwater ecosystem. The things in there clean the water, they provide food and the mud. And the weeds that they live in are also filled with the tiny, tiny babies of creatures, you know – eggs or just, like, fish fry that grow so much larger to form the kinds of things that you probably most associate with water. You know – the big fish, the frogs, maybe a toad. And we're going to see some of those bigger creatures in just a couple of minutes.

Ponds are so, so important. I live in the middle of a city centre. I'm actually in Cardiff in Wales. And I've got two bucket ponds in my garden and then I've actually got a fishpond as well. Everyone in my opinion should try and have a pond in their back garden, or just at least just a little bit of water. It makes such a difference to wildlife. Incredibly, half of the gardens in Britain today are paved, including mine actually. Like, if you go out into my back garden there's about three foot of concrete on top of the soil, so to build my ponds and to build all my flower beds I've actually had to build up on top of that concrete, you know, make all the soil from scratch really to get all of the plants in there and to get all of these ponds going. It's taken a good couple of years but now it's absolutely awesome.



One in three gardens in the UK haven't got any plants at all in them any more, and it's having a really, really dramatic effect on our wildlife. In Europe if you just look at fresh water, 40% of our fish species are facing extinction today. That is the worst record of anywhere else in the world. And half of Europe's rivers and lakes are actually polluted. They're really, really shocking statistics when you think about it, and you can see why really that actually our waterways have struggled so much in the past.

If we just look back to the pot, you know this pot here that I've been telling you about that's so, so important. All of the life that you can see in here: hundreds of different species and organisms and the snails – everything – that's all just come from a single bucket pond. And all I've done to make that is go and get a barrel from a garden centre, buried it in the ground, put in a little bit of gravel, got some aquatic plants also from the garden centre (but you can buy them online), planted them up. They've cleaned the water and, honestly guys, within a few weeks all of that life has started flowing into that pond.

You can use pretty much anything to build a bucket pond in your own back garden. You can use an old washing up bowl. You could use an old sink. You could use an old bath if you liked so long as you remembered to plug up the hole at the bottom. And then just let nature do the rest really. Once you've put your gravel in and a few plants you will be really surprised at what sort of stuff goes in there.

It's not just this stuff that it's really, really good for. You know, I've had dozens and dozens of species of bees come to my ponds today. They come and they have a drink, especially in the springtime because that's when they're laying all of their eggs. Amphibians as well, you know, they breed there as well. I had my first breeding pair of toads in my bucket ponds this spring. And wild birds as well: they also drink and wash in them too.

But for me, I think actually just having ponds and being near water is good for us too. I think that it's good for the soul. When you sit there and you watch wildlife in ponds it just makes you feel so much calmer. And it was having ponds really when I was a kid growing up right



over in the Norfolk fens that first introduced me to wildlife and all of the creatures that live there – you know, freshwater fish, everything.

It was where I started to learn how to catch things as well. I caught my first frogs from the garden pond and I also caught my first fish. And all of those things really put in those very first building blocks that then helped me in my career when I became, you know, an angler on television, and much later when I wrote about fishing in my book.

So, tank number two. One of the very first fish that I ever, ever caught are in this tank. There's two different species for you guys to have a look at now. And I think that these are iconic British fish. And for so many people they were the first fish that they ever caught, ever saw just by going down to a local stream with a little net and scooping it in the shallows more often than not. The fish that are in this tank are what you would catch in that net.

There we go – wow! Look at those guys there! So these are sticklebacks and minnows. Let's see if we can isolate one of those sticklebacks. So there's a pair of them there right in the middle of the screen. You can see they're a little bit wider, they're a little bit greener; they've got big yellow eyes; there's a slight red colouration on the gill covers. Those are three-spined stickleback. What a predator they are as well. They're so, so small but they really pack a punch. They're super aggressive. They'll eat tadpoles. They'll eat fish eggs. They'll eat other small fish. But yeah, they're super, super small. These two in here are about as big as they get – oh, he's coming right up to the camera now – at only about seven centimetres long. You can actually see that they're almost attacking their reflection in there as well.

You know, they don't like other fish to be around, especially other sticklebacks especially at this time of year because this is their breeding season too. When it's their breeding season the male its throat turns bright red as does its belly, and it performs a beautiful little dance to attract in a female. The female then comes along and if the male is lucky they get to breed, and the male will build it a big nest made out of sticks, and the female will go in there



and they'll lay up to 400 eggs that the male then defends really, really aggressively – makes sure no one else comes anywhere near that nest. Then eventually they hatch. Absolutely amazing.

In the UK there's actually three different types of stickleback. There's this one the common one, which is the three-spined stickleback that you can see right here in my pond. But there's also a very rare nine-spined stickleback as well. That fish can be found in fresh water, in salt water, and even in sort of brackish water as well: a mixture of the two. And then there's this really weird-looking fifteen-spined stickleback that is found only in the salt water.

So the other fish that's in here are the minnows. There's one right there: you can see it's got that beautiful long line down the length of its body. They've got kind of a cute face I think, you know. It's kind of rounded. Super small fins. Little features. You know, it's another really small fish. And they've got amazing shoaling behaviour. There's probably about eight or nine inside this little tank today. But if you get really, really big shoals of them, sometimes hundreds and hundreds of them, when you look at them they almost look like one giant block. And it's a way of making sure that it's very difficult for predators that might want to eat them to actually isolate an individual because they'll scatter and sort of, like, jump on the surface. When you see a predator attack them it's almost like someone's thrown a load of silver coins along the top of the river. They're very, very fast. Very, very difficult to eat.

They feed on insects, molluscs, crustaceans, plant debris, fish eggs. And they'll spawn several times between April and June – making these sort of like short migrations up into really shallow, gravelly beds. You're going to find them in fast-moving water, in streams, anything where there's really highly oxygenated water really. Amazingly, one of the females of the minnows can lay up to 1,000 eggs which, given they're only a maximum size of like 10 centimetres, I think that's pretty brilliant to be honest. But they are also, sadly, the fish that probably gets eaten the most in the river. They've got loads and loads of predators. In fast-moving streams brown trout will eat them. In slower waters they're eaten by perch – this



amazing stripy predator. Pike as well will eat them – another big predator in British fresh water. And then there's the birds: herons, kingfishers, anything will have a go.

One thing that's really interesting that I want to just show you here is if you look pretty much at any fish species you'll notice that on the underside they're much lighter. So these minnows you can see in here today, they're almost white on the underside, whereas at the top they're really dark. And the reason for that is because it's actually a really cool piece of camouflage. So if a predator is underneath it and it's looking to eat the minnow, it'll be looking up into the sunshine; and if the belly's white as these ones are, it's very difficult for it to actually spot the fish. Vice versa from above, if a kingfisher's right above these fish and it wants to swoop down and eat them, it's looking at the darker top of the body, which is silhouetted against the bottom of the river – again making it much, much harder to eat.

Okay guys, there we go, sticklebacks and minnows: two of my all-time favourite fish. A really, really cool way to catch these fish, really simple – all you need to do is get a normal drinks bottle like this one here, cut the lid off, then you punch some holes into this part and make sure you put a big stone in, otherwise it will float and it won't work at all. Punch some holes, and then you want to put in a little bit of bait – anything that you think fish might like to eat – it could be luncheon meat from your cupboard, you could put in a little bit of bread, sweetcorn even; anything that's kind of sweet or meaty that going to have a real smell for these fish to hone in on. Put that in with the stone having punched holes in. Get the lid – now this is the important bit – and then you want to put the lid back into the bottle so that the neck is going into the body like that. All right?

Then you tape it up round here to make sure there's no holes and then you go down and into the shallows of a stream or into a pond, place that down and wait for maybe half an hour. And in half an hour's time you can come back and you can lift it up and see what you've caught. And what happens is the fish swim down there, the minnows or the stickleback, and they go through the little hole really, really easily 'cos they're funnelled in by the shape of the bottle. They find the nice food to eat; they're chowing down and then



yeah, 30 minutes later you lift it up and you'll find some fish 'cos it's actually quite hard for them to get out of there. And that's how I've caught loads and loads of minnows and sticklebacks in the past.

One thing, though, I am going to say that's really, really important. If you catch anything from the wild, always, always, always make sure that it goes back safely exactly where you caught it. These minnows and sticklebacks that you've seen today actually I just bought those from a pet store. They are basically pet fish. So they live in my pond. As soon as this talk's over I'm going to go out there and put them straight back. But if I'd caught these from the wild I definitely wouldn't be sat here with them in my house. Catch them on the riverbank, have a nice look, learn some lessons and then put them straight back in where you found them. You don't want to be distressing wildlife.

Right guys, so the last tank. In here is something a little bit special from the depths of my ponds. This is definitely my favourite fish of all time. It was also the first proper – and when I say proper, I mean like properly big – fish that I ever caught on rod and line when I was probably about six or seven years old. And it was a personal best that stood for years and years and years. Now he's a little bit shy so I'm going to be quite quiet when I show you this one. Okay, are you guys ready?

Here we go. Here he is. Oh, he's such a beautiful fish. Let's see if we can just throw a little bit of light on him without disturbing him too much. There we go. This is *Tinca tinca*, the doctor fish, also known as the tench. Honestly guys, I think this has to be one of the most handsome fish in British fresh water. You can see it's got that like beautiful olive skin. It's got these amazing rounded fins. Just look at that fin on top of its body! It's just got that beautiful, almost spoon-like shape to it. It's got quite a reddish, almost teddy-bear-like little eye and that's because the tench are actually quite shy. They hide out among dense weed or in big lily beds. You can see I've just put a plastic plant in here just to make him feel a little bit more comfortable before I put him back into his pond.



If you look really, really carefully – and I'm going to move this thing slowly – look at his mouth, and if you follow to the very corner of his mouth you can see there's a tiny, tiny little whisker. That is a barbule and that is because these guys are bottom feeders. They're used to finding food in really, really dark environments, so they use those whiskers, those barbules at the corners of their mouth, to search around in the mud to feed on invertebrates, bloodworms, leeches, pond snails, small mussels. Basically, everything that you see in that first jar the tench will eat. But then eventually, one day, the tench grows old and it dies and the favour is reversed. And all of that life that you saw in the first jar is able to come in and feed on the body of the tench; and that is how this, like, beautiful ecosystem is woven together.

You might have heard at the start I called it the doctor fish and you might be wondering why it's called the doctor fish. Well, the reason is it's because down its sides it's really, really slimy. And a hundred years [or so] ago in the Victorian era people used to think that the tench's slime had medical properties. You know, they'd observe other fish going up and rubbing themselves against the tench and they thought that the tench could actually heal their wounds. I don't actually think that it's that true but it's an amazing story about an amazing fish.

So there we go. That is every step of this very little freshwater food triangle. So it goes from the life at the bottom, all of those different types of species, to the slightly bigger animals, to the ones that are much bigger like the tench. One of the things I'd really like you guys to try and remember though, you know – remember when I told you about how polluted our waterways are? It's really, really important that you can see just how fragile this system is. If you do something – polluting the water or putting in a dam on a big river, you know that stops the way that this system naturally works – then everything very, very quickly dies. So it's so important that we really do as much as we can to take care of our British freshwater wild systems. Yeah, go out and make a bucket pond –definitely do that: it's going to make such a difference to the wildlife in your garden. But don't forget to think about the rivers, the canals, the lakes and the wild ponds that we have in this beautiful country.



Okay guys. You've seen a tench. As I mentioned, that was like the first properly big fish that I caught when I was a kid. I mean, I'll be honest with you now as a grown man, it wasn't that big. It was probably only a little bit bigger than my hand, but as a kid who'd been catching things this big for years I just couldn't believe it. I could remember it like it was yesterday. I sat with my Granddad and I'd just seen just off the edge of these lily pads I saw its fin come out of the water and flick. It was almost like it was waving to me. And I thought: could that be a tench? I'd never actually seen a tench with my own eyes. I'd only ever read about them in books or seen them on the T.V. So I cast my float out and I waited and I waited for what seemed like an eternity, but was probably only about five minutes, and eventually, that float dipped and bang! I made contact with this amazing creature.

My book, *The Old Man and the Sand Eel*, is very much about my childhood experiences of fishing. You know I grew up in the fens and started fishing when I was about four years old. I'm now thirty-six so I've been fishing for thirty-two years straight. But the memories of the fish that I caught when I was a kid were the strongest ones of all and especially those really special experiences that I'd shared with my Granddad.

The book itself it was inspired by me losing a rod-caught fishing record quite a few years ago now. Probably five or six years ago I was fishing in Devon with my wife and I hooked into this fish and it didn't feel that big and I reeled it in and it was a sand eel. Now I haven't caught many sand eel in my life but this was one that was definitely a big sand eel. And I can remember looking at it and I even filmed myself with this fish and said, 'Wow! That's the biggest sand eel I've ever seen in my life'. And I weighed it and it was 10 ounces. You know, 10 ounces it's not that big, it's literally like that long. And I put it back into the sea and forgot about it until I went home and I got this book out that my Granddad had given me when he died called the *John Wilson's Fishing Encyclopaedia*, and in the book it lists all the British record fish species. And I looked up the sand eel and realised I had just smashed the British record.



So my book, *The Old Man and the Sand Eel*, is pretty much my quest for redemption. For two years I travelled the length and breadth of Britain. Up into Scotland in chase of the silver tourist, the salmon, down to lily-lined ponds looking for our very own carp species, the crucian carp; trying to break any fish record that I possibly could. But as I did it, and the longer I got into my journey, the more I realised what actually was most important. It wasn't big fish or fishing records. It was actually appreciating the things that are in that jar right on the end – the little things, the stuff that's at the very fabric of what holds together our whole freshwater ecosystem. And also as an angler I realised that it wasn't just about catching fish; it was about experiencing life, wildlife on the riverbanks. And for me as a kid it was about sharing experiences with the people that I love.

Thank you so much guys. I hope you've enjoyed this talk.

I'm going to finish now with a read from my book. Here it is, *The Old Man and the Sand Eel*, and this is the first fish that I ever caught:

I was almost five years old when I caught my first fish but I can't tell you what it looked like. I was so excited by the prospect of catching and holding a real, live fish that when my float eventually slid under the water, I struck so hard that I projected my catch directly out of the river over my head and deep into a field with sugar beet.

'A little too hard perhaps, Will,' said Granddad after a short spell of mutual silence. He took the rod, freshly baited the hook with a couple of maggots and recast into the middle of the creek. Technique wasn't all that important in those seminal days. With Granddad it was all about experiencing the first fish on the bank by whatever means possible, and enjoying time spent in each other's company. That meant size was an irrelevance also. Our best bet clearly was with the vast shoals of roach that teemed within the well creek right opposite the house. They never seemed to grow beyond a few inches in length but that didn't mean they were hooch. Far from it, in fact.



With the float now bobbing happily in the centre of the creek once more I was passed back the rod. It was my first – a bright red two-piece number with a smooth plastic handle and reel-loaded with light monofilament line, and I loved it more than anything else I have ever owned.

'I'm just going to feed a few maggots to get them interested,' said Granddad, selecting a pinch of the wriggliest baked tin residents and flicking them around the float with extraordinary accuracy. The float bobbed.

'It's another bite!' I screamed, standing up blowing our cover and forgetting to strike.

Granddad pulled me back into the seated position via the elasticated waistband of my bright red shorts. 'You've got to stay calm, Will,' he implored in hushed tones, his eyes sparkling with suppressed laughter-tears.

I refocused, pleading with the float and river to give me just one more chance. A couple more maggots flew out and then finally, mercifully, it happened. In the photo of that first fish I am sat next to Granddad with a look of utter disbelief plastered across my face. My eyes are as wide as they could possibly be, gripping a length of line with what can only be described as a miracle on the end of the hook. Incredibly, given how many roach were in the creek, my trap had worked its way into the mouth of a small skimmer bream.

Like the roach, the skimmer appears to be a silver fish but is in fact the juvenile form of the darker and much larger common bream. It differs from the roach in its elongated slate-grey anal fin on the underside and its generally much flatter, wider appearance. Hence, its skimmer name in homage to a skimming stone.

To be honest, it could have been any fish of any species ever. My reaction would have been the same. In that moment I was the king, the master and commander of the river, the man who had unlocked the great secrets of the deep and tamed the great beasts that lay within. It mattered not that this was, in reality, an extremely small specimen either. In that brief moment I'd been handed the keys to a lifetime of pleasure and study. And in Granddad I had a more than willing teacher.



There we go, guys. I really hope you've enjoyed this today. I've loved giving you this talk. And give a 'Like' to the Pontypridd Children's Book Festival, and hopefully, I'll get to meet you guys in the flesh one day.