

Sea Change

Sea Change, Episode 3 –

Rob Kynoch



Scottish Fisheries Museum: Hello and welcome to Sea Change, a podcast series by the Scottish Fisheries Museum. This podcast asks a selection of the most knowledgeable people their thoughts on the current situations facing our seas, and what they think the future looks like.

SFM: Today I have Rob Kynoch with me, which is very exciting. So hopefully we will have a really fantastic discussion about all things related to the sea. So Rob, just to begin with if you could introduce yourself. Tell us a bit about you.

Rob Kynoch: My name's Rob Kynoch, and I work at Marine Scotland Science Marine Laboratory, based in Aberdeen. My job title is Fishing Gear Technologist and I've been doing this job for 33 years now.

SFM: That's quite a long time.

Rob Kynoch: It's a long time, but it's a complicated discipline.

SFM: (Laughter) Takes a while to perfect then?

Rob Kynoch: Definitely, definitely

SFM: Absolutely, so I expect that you've spent quite a lot of time at sea, in your role as well?

Rob Kynoch: I have, I started off as an Assistant Scientist and I was at sea pretty much every month for five years.

SFM: Well that is a long time, so I think you are the right person to be asking these questions to. That's for sure. So our first question for you is just quite a general one: How do you interact with the seas in the role that you have?

Rob Kynoch: In terms of my job, as I said I started off as a Junior Scientist but obviously that role has evolved and now I am the person that advises Marine Scotland on all aspects of the fish capture process. And this includes working closely with the fishing industry to develop by-catch reduction technology. Also it involves me spending quite a lot of time at sea developing new nets and experimenting. And that usually is about 100 days to 120 days a year at sea.

SFM: Right, there you go, that's a lot of time in a year.

Rob Kynoch: It's a lot of time in a year

SFM: Absolutely, and I think what is really interesting is that you're getting both sides of the story then. You're getting the research element but also you're getting to speak to fishermen and get hands on with the industry as well.

Rob Kynoch: Yeah, it's very much a collaboration between ourselves, Marine Scotland Science, and industry. So it's a nice role, it's very much a hands on role and a very practical role.

SFM: Absolutely, that's probably a good thing isn't it? Get you out of the office and get you doing things, in a practical sense. So our next question is just about how you go about engaging the public in your work?

Rob Kynoch: Yeah, we have had a number of ways Marine Scotland engage with the public. We have a website, which is really accessible. We also have a blog, which is really nice because it gives people up to date information about what trips are going on and what research we're actively doing at that moment in time. We also have a Flickr site, which has lots of cool photographs and that's really appreciated by kids; they love that you know. We also have a YouTube channel where we have a lot of our videos. We take a lot of underwater footage and most of that is getting converted and put onto YouTube. So again it can be very accessible.

Also at Marine Scotland Science we run a work experience programme for school kids. So we have a lot of engagement with school kids and they come in as groups and we have kind of an open day for them I guess. But also there's an opportunity for individuals to actually come and work for a period of time in the lab and they get a chance to get hands on a particular project. And we also have undergraduate / postgraduate students and they have the opportunity to come to the lab and gain work experience as well.

I think the key thing for us is that you don't really appreciate how many people are coming on to your website, the Marine Scotland Science one. That's one of the things that in preparation for this one of my colleagues told me one of the most looked at sites in Scottish Government. Even more so than the Parliament site, which really surprised me. I think we're doing the right thing: we're

getting the material onto the various sites, making accessible. And obviously with the modern technology, you know people are able to surf, have a look at it and you know it's kept up to date which is really nice. It's current, you know.

SFM: Yeah, a living working progress sort of thing, absolutely. And I think that's so important is that people can get access to all this cutting edge stuff that you guys are doing at se;, that's fantastic.

Rob Kynoch: And I think when we actually were in the middle of a trip we'll put together a blog to get some of that information, get a feel for what we're actually doing when we're away at sea. And even try to get images because again it's difficult for people to comprehend what it is like.

SFM: Absolutely, absolutely this is it. I think there's that bit about the term sea blindness comes up quite regularly doesn't it when you think about these things because it is difficult to comprehend if you can't see what's going on, because it's just away in the distance. So no I think that images and videos are always a fantastic thing, that's for sure.

Rob Kynoch: I think we're fortunate, I mean we take it for granted a lot of what we see but for instance you know I was close to St Kilda in November. And actually getting to see St Kilda ten miles away, it was actually stunning.

SFM: Absolutely, yeah.

Rob Kynoch: You know I take it for granted now because I see it quite a lot. But I think you know that's where sometimes you have

to sort of stop and think, "wow!" you know, how fortunate I am to see that?

SFM: Absolutely and getting to explore all the different bits of Scotland's seas, absolutely. Yeah you know that's fantastic. It sounds like you guys have a really good programme of engagement and it's great that you get students in as well. I think that's excellent, leading the way for the next generation of fisheries scientists and all that.

Rob Kynoch: Well I think that one of the striking things is we have children in from Primary and you wouldn't believe the questions that you get asked.

SFM: (Laughter)

Rob Kynoch: They are some of the most pertinent questions that you could ever have. But you are getting these from nine-year-olds.

SFM: Yeah

Rob Kynoch: But they are so with it and so interested in terms of what we're doing.

SFM: Really, really switched on

Rob Kynoch: You feel as though you've been put on the spot.

SFM: Yep, that's good that's quite a good leveller isn't it? Bring you back to it, that's fantastic. So next question is perhaps our meatiest and broadest question and it's: how has your role broadened your understanding of the issues facing our seas?

Rob Kynoch: In terms of myself, my work has been very focused on fishing gear. And obviously for many many years we've been involved actively in reducing unwanted by-catches and been very successful in it in Scotland and in fact world leaders in terms of Marine Scotland Science working alongside the Scottish Fishing Industry. And that for me was very telling going through that process through the 80's, the 90's and into the 2000's.

And obviously working with the different generations in terms of: we are now dealing with grandsons. You know where I started with the Grandfather at sea. And I think that the knowledge is far ahead of what the understanding was when I started in the job. And I can only see that building as we go on into the future. Partly because of modern technology, things evolve and develop but I think in terms of how nets work, function, how species alter their behaviour.

SFM: Yeah, absolutely.

Rob Kynoch: You know all that knowledge is fed into a lot of that work that we're doing. And that's really interesting in terms of when I started on the job I looked upon no difference: a fish is a fish.

SFM: For sure, yeah.

Rob Kynoch: But actually you know they have totally different behaviours and that was something of a, you know really, I find

that really exciting that they do differ. And then you're able to utilise that to develop new gears, to obviously, not to target a particular species. You know and that's really been fascinating in terms of the work.

SFM: You know, that is fascinating. Absolutely, I think people will be surprised to hear that. It is something that I think people do see fish as a "bigamahogamous" (laughs) species and not the nuances within that. That's really, really interesting though. Are there sort of specific species that behave in specific ways that you can identify?

Rob Kynoch: Yeah, I mean, we obviously have things like in the Gadoid species, which would be haddock, whiting and cod, you have different behaviours in terms of those three species which you would view as being the same. They're herding species, but actually they do behave differently and whiting are probably one of the most determined fish; they can be quite tenacious compared to haddock and cod.

SFM: There you go.

Rob Kynoch: So that's, you know, one key difference and the other difference you find is with cod. I don't know whether it's because they're obviously a bigger fish but they almost give the impression that they are not really frightened of anything.

SFM: (Laughter)

Rob Kynoch: You know and they don't really care. So their behaviour: you know, they think they're the toughest fish in the sea I think. So they do have a different behaviour. You'll find with

haddock and whiting for instance when they swim in front of the net they'll go high when they tire and fall back into a net, whereas cod will stay very low in a net.

SFM: Oh, that's interesting!

Rob Kynoch: They don't do the same thing as they fall back into the net. So again you can start looking at that behaviour and start utilising that in terms of, you know, designing features into a net. If you are targeting whiting and haddock you can design a feature in that you're not targeting cod for instance.

SFM: Yeah, absolutely and it sounds as though you need to have strict measures for the rebellious cod (Laughter) who seem to test you. There you go, that's really interesting and I think what's really great to hear is that, you know, you have seen progress in your work basically. You know, you've been doing it for quite a long time, but there's clearly been progress, you know, in that.

Rob Kynoch: Absolutely massive, I mean you know it truly is night and day in terms of that. And I think that's really good going, you know, into the future and, you know, a really good relationship between the science and industry going forward. So yeah, massive progress.

SFM: That's excellent, really, really excellent. I wonder if there's, can you give us an example of a project that you've worked on with the industry to reduce by-catch or something along those lines: that would be really, really interesting for our listeners to hear.

Rob Kynoch: Yeah most recently we've been working closely with a vessel called the *Amity* and the Skipper is Phil, and that was to

separate prawns from fish. So it's a separator trawl; so it was basically a two-level trawl. You divide it with a horizontal panel and then you split the, you guide the fish into the top chamber, the top cod-end, and the prawns go through into the bottom cod-end. So you keep the prawns separate from the fish. You can then have a different mesh size for the fish in the top chamber. So you're obviously allowing the fish that you don't want to go out through the bigger mesh but it also maintains the quality of the catch. So the Skipper is getting two things out of this: he's getting, he's doing his bit for conservation but then obviously when his catch goes to market, being a prawn vessel, they tend to get very poor prices for their fish catches. So in terms of this gear they are actually boosting their fish catches. So there's an incentive for them, you know to utilise that particular gear.

SFM: I think that's really, really excellent actually. And that it benefits both sides doesn't it?

Rob Kynoch: Yes

SFM: Absolutely, and I think that's probably key

Rob Kynoch: And we are very aware of that, that the, you know: not only are we wanting to have, conserve stocks for the future but we also understand that, you know, you need to maintain the viability of the fleet as well.

SFM: Absolutely, yeah.

Rob Kynoch: So that, you know, it goes hand in hand, and that's how we're not only focusing on, sort of, the science, the cell

activity if you like, but we also understand that there's other benefits that can come out of particular devices or designs of net.

SFM: Absolutely, that makes a lot of sense. And I think one of the things that it comes back to that, that point of taking videos and taking photos of your work because I think one thing that some people might be surprised about is the scale on which you work. You know the vessels that you work on are absolutely massive and these nets are huge. And I think that's something that people might be surprised by.

Rob Kynoch: Yeah I mean it depends obviously on the size of the vessel because things are scaled down to that. But yes, on a larger vessel they are not necessarily having the net as big as they could have. You know that wouldn't be good in terms of their profit to drag around a big net and burn fuel. So they have to consider that there is going to be times of the year when the weather is poor and they need to have a scale of net that they can still operate in poorer weather and they are not burning fuel unnecessarily, you know so there's a scaling factor there. Which isn't, you know, you look at a net and think "wow, that's huge!" but actually in the scheme of things it's not as big as it could be.

SFM: Yes

Rob Kynoch: And you're having to make those decisions in terms of particular business model. And it's no different from our research nets. When we're going out to sample the stocks, there is no point in us having a massive net. You know again we have to scale the net according to what we can tow and handle. And the size of sample we are trying to collect. So again it does appear quite a large thing but...

SFM: It could be bigger

Rob Kynoch: Right

SFM: You know, I think that it's just a balancing act, isn't it? That seems to be absolutely the case. I think that's really interesting actually is just that trying to assess what suits at the time, basically but that's very, very interesting. I think what's clear is that your role specifically has clearly given you this two-sided appreciation of how the seas operate and the businesses that go on in the seas.

Our next question is a bit of a wild card question but seeing as you've worked with the seas for the last 30-odd years I think you'll probably have thoughts on this that others might not. So if you could tell someone something they might not know about our seas what would it be?

Rob Kynoch: Ok, well I have two things for you.

SFM: Ok, that's a bonus one, yeah.

Rob Kynoch: We have around nineteen thousand kilometres of coastline, which is 8% of Europe's coastline which is around Scotland. And we are quite literally surrounded by the sea. Now I know we were but I didn't know that until...

SFM: That's a vast number isn't it?

Rob Kynoch: That's a vast number and you can understand why the sea is so important to Scotland from that fact.

SFM: Absolutely

Rob Kynoch: The other fact that I had was, although about 20% of Scots live within about 1 kilometre of the sea you'll never be more than 65 kilometres from the coast wherever you are in Scotland.

SFM: Wow, yeah those are, I think sometimes when you put a number to something it really brings it home doesn't it? I think that's definitely the case. I grew up around the coast and I guess the sea is kind of; it's always been there for me but interestingly speaking to people who live down south or live in a land-locked European country, you know it's, there just isn't this sort of omnipresence of the sea and maybe it's not as big a feature in your life. But I think most people in Scotland probably do feel in some way connected to the sea. I would think.

Rob Kynoch: I think they do, I think it is in us, in Scotland. We have that, you know you like to see the sea.

SFM: Yeah (laughter)

Rob Kynoch: You know you like to see the sea you don't like to go too long without seeing the sea. And the fact that we don't live that far. We appreciate it in Marine Scotland Science because we do travel to different ports.

SFM: For sure

Rob Kynoch: And for us going you know to the Shetlands, the Orkneys, across to the West Coast you realise you go from Aberdeen and you'll be in Mallaig in not that long. And you've travelled east to west and it does put it into context.

SFM: Absolutely, it definitely does. And I think in Scotland as well there is probably: I think lots of people that are connected to the fishing industry in some ways because it was such a massive part of Scottish life. But also, you know, we use the sea for leisure in Scotland as well don't we, quite a lot so. No absolutely, very interesting facts, thank you for bringing those with you today. If you were to give the listeners to this podcast some advice about how they can maybe play their part in the next 50 years of our sea, what would you suggest that they could do?

Rob Kynoch: I think that it's really just: get the information;, go out there. When they visit places like Anstruther for instance, come to the Museum. Go onto Marine Scotland websites. All the information is there and it really helps them understand what the seas about. And it will give them an appreciation of how important the sea is to Scotland. I think that's the key thing.

SFM: Yeah, absolutely, I think just immerse yourself, get all the information and draw your own conclusions from that.

Rob Kynoch: Yeah, and I think it does give you a sense of ownership of the sea, which we need to have.

SFM: Yeah absolutely, because the sea belongs to us, doesn't it?

Rob Kynoch: It does, it belongs to every person in Scotland. You know, they have a share in that sea so find out more information. And I think the younger generations are becoming more informed because the information is getting out there and I think through school programmes they are already leaving school with a far better understanding than I had when I left school.

SFM: Yeah

Rob Kynoch: None of this was ever, I didn't even know that Marine Scotland existed when I left School in Thurso.

SFM: Yeah, absolutely

Rob Kynoch: So the whole understanding is far better and that will only improve as technology gets better.

SFM: This is the truth, absolutely and I think that it's something that I've noticed about my role here at the Fisheries Museum is that there has been much more of a shift towards schools wanting sessions about sustainability and sustainable fishing and the environmental impact of different things on the seas rather than your sort of traditional history lesson, which I think shows that it is such a big part of the agenda in Scotland. We just want people to be aware and to feel as though they have their part to play in it absolutely. No, that's fantastic.

So our last question is perhaps the most challenging one but I would just love to hear your thoughts, I presume there is no right or wrong answer. I'm sure everyone will answer this slightly differently. And it is: where do you see the seas in fifty years' time?

Rob Kynoch: It's a massive question, and I wish I had a crystal ball. I think from my own discipline, gear technology, we'll continue to develop. Things will develop, knowledge will increase, technology will help us in terms of the knowledge and understanding. One thing I found is that every week I learn something new and even though I've been doing the job for 33 years I think the fact is that it's not something you can sit back on and say I know it all.

SFM: Yeah, absolutely

Rob Kynoch: I think that's the key thing. And as we discover more about the undersea environment, that broadens our knowledge and understanding and there is so much we still have to learn. I think they know more about the moon than they do about the deepest depths of the sea.

SFM: Yeah, no isn't that mad?

Rob Kynoch: And I believe that, you know, technology advances and it'll help us, you know, understand more about the sea, how it functions. Tides in the deepest sea for instance, things like that. We're developing technology to be able to monitor these things. Better cameras to understand fish behaviour; being able to have real-time cameras that we can view what's going on in terms of the behaviour of fish and how they're reacting to nets for instance. And technologies will change, net technologies will change. Potentially, will we have bio-degradable nets in the future? So, a net only has a finite life span, in a sense. So there's all these, quite exciting in terms of my perspective, gear technology.

SFM: Absolutely

Rob Kynoch: I think there will be a lot more in the future, in terms of that.

SFM: That sounds very, very interesting actually. I think that's the thing, it's that, you know, you can't predict these things because the sea itself isn't a static thing, you know. It's going to constantly

evolve and change and I guess all that from the gear technology side of things it's just about adapting to that, isn't it? And working out what works best at that moment in time.

Rob Kynoch: Yeah well, we don't know in terms of the future what it means. I mean, well obviously, in terms of reducing the carbon footprint for instance, vessels will change, the actual powering of the vessels will change and it's quite an exciting time because technologies are coming on for that now. Just in terms of electric vehicles: that has taken leaps and bounds forward. And we don't really have a clear picture at the moment how things like vessels will change in terms of that. But obviously people are developing those technologies now; they're developing fuel efficiency savings for vessels at the moment and cleaner systems that the boats use. Again exciting times in terms of those new technologies.

SFM: Absolutely, sounds like there is a lot of changes in such a short space of time, isn't it, that's the case? I'm sure that you've, like you say, that you're working with grandsons of people that you've worked with. I'm sure there is a lot of changes happened in that time so yes, it's silly of me to ask the question really, isn't it? We can only guess but that's been absolutely fantastic. Thank-you so much for speaking to me today Rob.

Rob Kynoch: Thank-you for having me.

SFM: And I'm sure our listeners will be fascinated to hear your thoughts, so thank-you very much.

Thanks for listening to sea change, the Scottish Fisheries Museum podcast series that accompanies our exhibition of the same name, running from the 24th January to the 21st June 2020. Join us next time when we will be speaking to Moya Crawford.