Sea Change

Sea Change, Episode 4 – Moya Crawford

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: Ok, so I'm here for another of our Sea Change podcasts this morning with Moya Crawford. So Moya if you could just introduce yourself to begin with and tell us a little bit about your work.

Moya Crawford: Well my name is Moya Crawford, I've lived by the sea practically all my life and have worked with the sea in various forms all my working life. That is with salvage, marine engineering and also with science.

SFM: So a broad overview really?

Moya Crawford: A very broad and I think a very practical overview. So when I think about the sea I think of it through the soles of my feet and the motion of a vessel.

SFM: I think that's a good thing, definitely. So our first question for you today is about how you interact with the seas in your work?

Moya Crawford: The sea and how the sea behaves affects all the engineering that we do. In terms of our salvage operations, when we worked down to 3,000 metres, that was the deepest wreck we ever worked. The first thing we do is look at the ship; the second thing we look at is what is the sea like, what is the weather like, what are the conditions. So our life has always been dominated by the behaviour of the sea.

SFM: That's an interesting point about the sea being sort of, a being in itself, absolutely. That idea of it impacts your work as much as you impact it.

Moya Crawford: Depending yes, absolutely, depending on the circumstances and depending upon the mood of the sea. That one can be monitoring its behaviour on a second by second basis, to waiting for some tremendous gale to blow past. So, yes it is a dominating force, an absolutely dominating force.

SFM: That's very interesting to hear, our next question is how do you go about engaging the public in your work?

Moya Crawford: It's a very interesting question that because we will engage with the public mostly regarding the wrecks that we work upon and what they think about wrecks, particularly if there have been people lost on those ships. So that, I suspect probably the best way to say it is that in terms of a wreck and doing a salvage job on a wreck where people have died, we interact with the public the way we would like to be interacted with ourselves. For example, on the SS *Persia*, although she was sunk as long ago as 1915, there were 344 people killed when she was sunk. So they all have families and so you tell them about the ship but in the same sense you're not just telling them about the ship and how she sank, but you're telling them about where the wreck lies, what the weather is like there, what the conditions are like there. So

you take them on a journey with you so, that, I would say, is how I interact most with the general public.

SFM: Yeah, absolutely, a very human interaction I would say.

Moya Crawford: yes, absolutely, absolutely.

SFM: It's a really fascinating area; I hope we'll get to hear a little bit more about your work with different wrecks further on in the podcast. So our meatiest question for you in this podcast is about how your work or your role has broadened your understanding of the issues that face our seas?

Moya Crawford: My work at sea and my own personal relationship with the sea: I think of it in many different places, many different guises. It absolutely drives the work that we do and in the terms of our engineering we take sustainability, the impact of our engineering on the marine eco-systems around us as being exceptionally important. Also, we take our understanding of the oceans and how they behave, from our very privileged underwater view, we've taken that into other issues rather like the commissioning impact of man-made structures on the marine eco-system. So I would say that it drives practically every aspect of what we do. Including how good our engineering has to be to withstand what the sea sometimes does to us, rather than the other way round. It's a two way street, I have to say.

SFM: Absolutely and again coming clearly through from what you are saying is this concept of the sea being an unstoppable force and something that you absolutely can't control. You have to just sort of work with, I guess.

Moya Crawford: Yes, absolutely and I think it is one of the very different things about marine salvage. Although we have always worked with ships that have sunk: so they have either run aground or they've been sunk during one of the two World Wars. And that's a very different form of salvage. One is very conscious of the sea when there are ships in distress. That you look at the power of the sea and actually what man does is really, it's almost, I wouldn't quite say irrelevant at times in comparison but it is most definitely we are a puny force in many respects and the irony is though through some of our other behaviour we're impacting on the sea, in terms of CO_2 output, increase in global mean surface temperature. So I think that there is something of a paradox there at times: that the sea is absolutely brutal and it can destroy whatever we make, however strong we make it, but in other parts that we are impacting on its health and productivity. That's a very, very serious issue.

SFM: Absolutely, it's clearly the case that both of those things sort of work in tandem with the work that you do, especially with salvage definitely.

Moya Crawford: Yes they do and what we've done more latterly over the years that we've taken technologies that we've developed that undertake our salvage work, and that we've taken them into that other sector such as the oil and gas sector, offshore renewables and it is that understanding of the sea and the long term understanding from being in one position for a long period of time where you have to understand the tides, the weather, the current: all sorts of aspects and you see all forms of marine life go past you, the two come together. So one of the things that I really do in my work today is link biology and engineering absolutely together in what we do. So yeah it makes for a very full and very interesting work scope.

SFM: Absolutely, but I think that absolutely makes sense. Something that is very clear to me and speaking to lots of different people about their work and about their research is that communication is absolutely key in sharing ideas and sharing knowledge and I think is a key part of understanding what's happening in the seas.

Moya Crawford: Very much so and that's why one of the things that we've been doing over the last four years is using simulation as a means of better understanding the interaction between engineering objects and the marine eco-systems in which they're put. That's taken our work absolutely forward in strides and so that the whole aspect of looking at the sea in multiple dimensions, so one is looking also as change in temperature as a dimension; the passage of time as a dimension, so it's very, very exciting the way that certain technologies are opening out and which we very much like being at the forefront of that and using it not just to make a technology good but world class. But to get it as efficient as possible and have the least impact on where we work.

SFM: Absolutely and this is something obviously that is dependent on the capability of the technology. So do you feel that is something that's come on leaps and bounds in the last little while or is it something that has been a more gradual impact of these new technologies?

Moya Crawford: I think the cumulative impact of various technologies has had a phenomenal impact. As a company, and this is probably something, in 1979 we bought the first low light level, black and white, underwater camera and now when you see how underwater images, video images have completely changed people's view of the planet and people talk about the David Attenborough affect and I would say equally for David Attenborough it has been the underwater camera, the underwater video camera effect. So that is an example of a

technology that we've brought in and has enabled us to completely alter our capabilities. As I say working down to 3,000 metres of water with constant images to the surface, is just absolutely fantastic, wonderful.

SFM: Absolutely I think that this is something that I'm sure you come across quite a lot is that it is so difficult to comprehend what happens at 3,000 metres under the sea. So I imagine as the technology has advanced it's become more, has it become any easier to communicate?

Moya Crawford: Well I think one of the things which is most difficult to communicate is that people talk about the deep ocean as being a very hostile environment and that to me is not the case. That if you go to the deep ocean it is very, depending on where you are, over vast areas that it is, the water, the water column, the volume of water is very stable over large areas. It may be hostile to us because we have lungs and we couldn't breathe but you know that biosphere is very stable. What is very, very dramatic and very hostile are the shore lines and the beaches that we go to on an everyday basis. So I think that… to people, to actually get them to understand that they are viewing one of the most dynamic, challenging for nature areas when they go down to the fore shore is probably the first start to getting people to comprehend the sea as whole because it is so multi-faceted. Depending on which particular part you're looking at, at which particular time.

SFM: Yeah, ever changing

Moya Crawford: Yeah, ever changing

SFM: Absolutely, that's fascinating and just to pick up on our conversation we've had previously it would be very interesting to hear a little bit about your salvage work on *Persia*. I think that our listeners might find that very interesting.

Moya Crawford: Ok, well the SS *Persia* was a passenger ship going from Tilbury Dock, London to Calcutta in the fading months of 1915. She was sunk without warning; she capsized in five minutes and sank taking 344 people with her, along with gold, silver, diamonds and, to make it even more exotic, the jewels of a Maharaja. It was our job to - under no pay, which makes it an exacting exercise - to cut down through five deck levels, to the bullion room of the *Persia* and recover her contents. So as a company, essentially as a family business we developed world leading technology to undertake this. So we had our own fascinating world which is a huge privilege. But it's not just the ship: on the *Persia*, one of the people who drowned was Eleanor Thornton, so we didn't know that at the time. She was the secretary and lover of somebody called Lord Montagu of Beaulieu. She was also the model for the Spirit of Ecstasy.

So one of the things that I found very strange being on the wreck site, on the surface - nobody goes sub-sea, all our technology is remote - but you are on this disc of ocean where this terrible event has happened, you know sort of many years before and you are the only people in the world that really know what it's like. Also I think very poignantly, where many people met the end of their lives and that's a very strange feeling and to a certain extent I wouldn't say that one feels complicit but you certainly know that you wouldn't be there unless somebody else had actually done something that you consider to be terribly bad. So I find that quite a reflective piece of, you know, sort of…

SFM: Absolutely, I'm sure, absolutely sure of it. I think that's it, it's about all these worlds that the sea sort of holds.

Moya Crawford: Yes, the secrets it holds and the fact that you can look at that depth. You can look at a piece of seabed to you what is in real time and you're probably the only people who have ever seen that piece of seabed and your probably the only people who will ever see it again. And that again I find a little strange in the terms of huge privilege but also a very great responsibility. So in terms of combining that knowledge, that understanding and bringing what is really very industrial engineering with science. I think it is an imperative and it is to the benefit of both parties as well.

SFM: Absolutely, so it is the mixture of science, engineering and also this absolute human element to the story. What a fascinating mix of things. Our next question in the podcast is: if you could tell someone something they might not know about our seas, what would it be? It's quite a big question.

Moya Crawford: I think it is how the oceans behave as part battery, part wonderful heat engine and regulate how we live wherever we are on the planet. So if you just go the ___ wrecksite - I think in wrecks - there is wreck there 42 degrees north of the Atlantic coast of Spain. People can think of what the weather is like there. That's on the same latitude as New York to the West. Now there weather patterns are completely different and if it weren't for that heat engine, then you know, if it didn't have the same impact where each of us live, our industry, our culture would be completely different. So, on a fundamental level I believe that that's one of the most important things with energy now being part of the forefront of how we use energy every part of our lives, to understand what fundamental role the sea has in regulating that, is exceptionally important.

SFM: That is very interesting and I think what comes from that as well is how global it is as an issue. You can't view sea in isolation can you? It's part of our world, it's the whole thing.

Moya Crawford: It's the ultimate inter-connection. I sometimes think of the sea as a sort of, Esperanto there is a language around the sea itself. It's a liquid Esperanto that links us all so that you can go to somewhere completely different, you don't speak the language but if you have an understanding of the sea or whatever then you have things to share with each other. So yes, I think that it's the ultimate interface for us all.

SFM: That's a wonderful way of viewing it and I think, you know people who live in Scotland, who live even near the Fisheries Museum where we are today it's an omni-presence, you know thing for us. But it might not be the case that everyone quite appreciates how much it really actually controls everything.

Moya Crawford: Absolutely it does control everything and I think, particularly for Scotland when you consider that you know it takes three hours literally drive from one coast to the other that the weather that they get on the west coast it's not very long before they experience it here. It is, the weather - what the sea does, it dictates everyday life and if you are lucky enough to live looking at the sea, I think like me you get used to checking it every few minutes.

SFM: So unpredictable! Yeah absolutely I think that is the case, you become a little bit, sort of complacent I think when you live nearby sometimes there is an element of that. But then also I think if you took it away people would be lost.

Moya Crawford: Yes well I think we check up on it more than we think we do.

SFM: That's true actually I think you're right with that. Maybe you are doing it subconsciously. So our next question and I think you

might have some very interesting thoughts to share on this one, is about what our listeners can do to play their part in the next 50 years of the sea?

Moya Crawford: I believe that how we can improve the health, cleanliness and productivities of the oceans on a local, regional and global basis starts in our own homes. If you consider the way that anybody who has a boat or a yacht or a ship - how they have had to or chosen in many respects alter the way they deal with rubbish, the way they deal with waste: just how they interact with the ocean. I believe that we need to be able to transport that concept of where we live in our own homes or we conduct our own businesses that most of the stuff that we discard or jettison - if we do not look after it responsibly, it will end up in the ocean.

So from running our washing machines to you know what we put down the drains to what we wear to how we operate in our gardens. I think each of us needs to be much more connected with the eventual fate of what leaves our homes and we must take responsibility for that and not have the attitude that we had at sea at one time, oh it will just disappear, something will take care of it, dilution is the solution. Whereas we have an attitude perhaps the council will deal with it, somebody else will deal with it that it's not our responsibility.

I think its individual responsibility and that we need to take the discussion that's currently happening around plastics and packaging and we need to extend that to many other aspects of how we live and operate in our lives, if we are interested in the health of the sea because you can't look at the health of the sea without looking at what we do on land. They are absolutely again, they are completely linked to each other.

SFM: I think that's a really interesting point. I feel as though, it seems as though at least that there is an increasing awareness of plastic pollution. I think yeah, we spoke about the Attenborough affect didn't we earlier.

Moya Crawford: Yes

SFM: And that whole view into what ocean plastics can do and Anstruther has just become a plastic free town, which is very exciting. But there is this increasing awareness but perhaps, there is still a level of disconnect isn't there? Between what leaves your home and where it ends up, I think there is even if a slightly greater awareness.

Moya Crawford: Yes, I think that there is a disconnect and to me it's one of the areas that something like simulation can help because you can get a much more, a much greater sense of connection and I also think societally that there are different decisions and spatial decisions that we have to make and I think there are really interesting discussions to be had over the use of plastics and all forms in our lives and I would say going back to business again, one of the things that we have done as a company is actually harnessed high performers, what are essentially plastics, they are high performance plastics in rope to replace steel.

Now in many respects that allows us to absolutely cut down our carbon footprint because they are so efficient: they are light weight. So the ropes that we use are a seventh of the weight of steel in air and they are weightless in water. But we may be producing micro-plastics. So I think that there are challenges on us all to say well. and this is where engineers again and marine scientists must speak together, with so many choices that we have to make, what are the best solutions. So and that bit's very much being a work in progress and it's again, it's in our own hands. We have to take responsibility for that.

SFM: It's a complete balancing act isn't it really.

Moya Crawford: It is a complete balancing act, it is.

SFM: Walking a tight rope and I think one of the things for me especially with the discussion around ocean plastics and the impact that we personally have on the sea and what we can do to help, I think there is also, maybe not such a great awareness that the sea is a public resource really. We all have ownership of the sea and I wonder whether if people had more of an understanding of their…

Moya Crawford: I would maybe phrase that in a little different way in terms of that I believe that we are custodians.

SFM: That's a much better way of saying it, yeah.

Moya Crawford: Custodians of the waters round our shores at a number of different levels and that we have a duty of stewardship so perhaps too much of the sea has been looked at as like a financial resource and things like that. So that we have to change from money being the only metric in the way that we decide the way that we as individuals and companies and governments should behave.

SFM: Yeah absolutely I think that is key, a much better way of phrasing it. (laughter) You knew what I was trying to say.

Moya Crawford: (laughter) Yes I did.

SFM: So to round up our podcast, our last question, again is quite a large one but really fascinating to hear your thoughts. Where do you see the seas in 50 years' time?

Moya Crawford: I think it very much depends on the decisions that we make now. I believe that there is the opportunity to make improvements and great improvements in a way that does not harmfully or deleteriously affect the quality of people's lives. So that we need a concerted effort at all scales: I go back to the individual scale on that. So I would side with somebody like Hans Rosling who believes that we have the capacity to do good and make positive change but it doesn't, with a world population that's going to be up to eleven million people pretty soon, I think it needs all our efforts. But I think that we can alter, can keep the global mean surface temperature beneath 1.5 degrees centigrade but that's not going to happen by itself. We all have to work to make that a reality.

SFM: That's a rousing call to action to end our podcast today. Thank you so much for speaking to me Moya, it's been really fascinating to hear all about your work and I hope that everyone has enjoyed listening.

Moya Crawford: Well thank you very much for asking me Eilidh, I've enjoyed it too thank you.

SFM: 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 Elspeth Donald.