



The Physical World

Waves: fishermen and communications

ANGELA LAMONT, PRESENTER: What's the most dangerous job in Britain? Well think of the industries: chemical, construction, mining. Well in fact it's none of those, not even close. The most dangerous job by a mile is catching fish.

TONY PAWLYN, TRUSTEE, CORNWALL MARITIME MUSEUM: Fishing is a very dangerous industry; your foothold's shifting, it's usually wet, there's water coming in so you've got an unsteady, unsure base, and then you've got a lot of moving equipment: wires, warps, gears, heavy, fishing gear maybe, swinging because the boat's swinging, so it's an extremely dangerous and hazardous occupation.

ANGELA: It's not hard to see why this can be a hostile environment, but fortunately the fishermen aren't alone out there. As well as the water, they're surrounded by another ocean – a sea of invisible waves.

Radar and radio are just two of the waves these fishermen depend on; without them they'd be lost. This is the story of the science of waves, waves that save lives.

I've come here to Looe in Cornwall to set a challenge. Can two skippers take a trip back in time and do without the modern electronic gadgets their fishing boats rely on. Why? Well I'm going to explore with the trawler men the science they depend on for their livelihoods and, if the worst came to it, their lives.

It means getting to grips with the ups and downs, and ins and outs of waves, from the ocean to the invention of radio, from shouting to the structure of the Universe, the connections will be revealed. Right, time to meet the skippers.

Armand Toms and Neil Murray are our two volunteers; I caught up with them on a rare day off.

ANGELA: Neil, hi, how are you?

NEIL: Fine, thank you.

ANGELA: Are you going to come and have a chat with me then, Armand?

ANGELA: Now you fish by pair trawling – is that right?

NEIL: Yes.

ANGELA: What's pair trawling?

NEIL: Pair trawling is two boats towing a large trawl net between them. A bigger net is better for two small boats tied together; it's more fishing and helps us compete with the bigger boats because we haven't got the power.

You have to make sure that both boats are working together, that they're coordinated; the strain is equal on either side to keep the nets square in fishing. It's a very skilled job requiring a lot of

Co-operation, and certainly good communications, between the two boats.

ARMAND: When we've finished one haul we all help and it goes aboard one of the boats while the other one shoots its net, and while you do your second tow, you pick the fish out, you gut it, raid it, wash it, put it down below and pack it in ice ready for coming in and offloading onto the market.

TONY PAWLYN: I think fishermen find it very hard to imagine what it's like for the families left at home because they're at sea, they're busy, they're fully occupied, they know perfectly well they're safe, there's nothing wrong. For the family at home it is a very long, anxious time. I don't think there's any other phrase for it, it's a permanent sort of anxiety, a permanent concern: will the husband be coming home; will the father of the children be coming home?

SHERYLL MURRAY: Nobody actually who doesn't know the commercial fisherman doesn't actually appreciate what being in that sort of job entails. It's something that's in their blood. It is a very dangerous occupation, nobody can actually determine what the sea is going to do and determine what the natural elements are going to do.

RAYNA TOMS: It's very exciting at times, and lonely at other times, never knowing what time they'll be back – or worrying, knowing that the weather can suddenly whip up a storm and if they're safe.

SHERYLL MURRAY: I've come to accept it over the years that I know he's not going to take any unnecessary risks. We've now got mobile phones so we can keep in contact.

TONY PAWLYN: You need communications that's going to work when the chips are down and a mobile phone may be very handy and you can ring the wife or your friend at the pub and say get a pint out for me at five o'clock, but it doesn't replace a ship to shore radio telephone and the proper kit. Ship to shore radio telephones are run professionally. Shore stations are monitoring for distress signals. Certain channels are monitored all the time.

NEIL: Well first we have the VHF and we communicate with other fishing vessels, and we also listen out to the coastguard for the weather reports. It's very important work for us because we're pair trawling so we're constantly talking to Armand on the other phone.

ANGELA: So how do you make sure that you and Armand keep a constant distance apart?

NEIL: We use the radar for that.

ANGELA: So is that blob there Armand?

NEIL: Yes, that's Armand there now.

ANGELA: That thing over there, GPS, that's a good one: a Global Positioning System. It receives messages from satellites 18,000 kilometres away to tell you exactly where you are. The sounder works underneath the boat and can help you detect shoals of fish – kind of important that one – the radar sends signals out from the boat and helps you stop bumping into things – the navigator works like the GPS but from a ground station instead of satellites – and the track plotter plots exactly where you've been and where you're going. And last but definitely not least, that essential piece of kit for all fishermen – a TV so you don't miss 'Neighbours'. Different gizmos but they all have one thing in common. They all work by sending or receiving waves.