POWER CABLES MAY HINDER SHARKS

Do the electromagnetic fields of power cables of the wind turbine parks in the North Sea hinder sharks and stingrays? A WUR-led consortium funded by the Dutch Research Council (NWO) is finding out.

Sharks and stingrays can 'see' electromagnetic fields. They make use of this ability to hunt and possibly even to navigate. The power cables of marine wind turbine parks could prove a hindrance. But how great is the effect of the electromagnetic fields surrounding these cables on marine life? This is an as yet unanswered question. Professor of Marine Animal Ecology Tinka Murk leads an investigation to find answers.

ELASMOPOWER

The project, mainly funded by NWO, is called ElasmoPower, referring to the elasmobranch subclass of fish (sharks and stingrays) on which the research focuses. Currently, sharks and rays seldomly visit the Dutch part of the North Sea. 'And even then, only the smaller species such as the thornback ray. But we hope they will return to the wind turbine parks, among other areas, where the habitat is actively recovering, and no fishing takes place,' says Murk.

Power cables could present a problem. Murk: 'The number of power cables and the amount of power transported to land is increasing dramatically, and with it, the exposure of animals to electromagnetic fields. A preliminary study showed that the field reaches as far as 25 metres on either side of the cable. Animals swimming in coastal areas may see this as a Himalaya of electromagnetic fields, which could cause them to alter their course.'

> **'Animals swimming in coastal areas may see a Himalaya of electromagnetic fields'**

A study involving eels with transmitters shows they slow down when they approach cables, Murk explains. Shark bites have been found in cables in the ocean. 'It is not clear whether this is aggressive behaviour, or whether the electromagnetic fields cause them to consider the cables prey. We don't yet know what the effects are exactly, nor what field strengths affect sharks and rays.'

CAMERAS

'Finding a relationship between field strength and animal behaviour is the first step,' Murk explains. 'And not just in mature animals, but also in unhatched eggs.' At a later stage in the five-year investigation, field studies will be conducted on artificial reefs both near and far from power cables. 'We will monitor animal behaviour with the help of cameras and sensors. And with the help of molecular techniques, we will see if the cables influence the composition of communities.'

PARTNERS

WUR is conducting this research in collaboration with a large number of partners, including grid operator TenneT, Naturalis, the Noordzee foundation and engineering firm Witteveen + Bos. The latter has also provided a PhD candidate, Annemiek Hermans, who will be working on the project for three days a week. The entire project will cost 1.2 million euros. RK