Canine Distemper May Be Killing North Sea Seals

But researchers continue to speculate about a link between the disease and immune system damage from polluted waters

Paris

CONCERN IS GROWING among European scientists that the viral disease which has already killed over half the seal population in large parts of the North Sea could spread to other parts of the world, including the coasts of Canada and the United States. Indeed, there is speculation that it may have originated among Arctic foxes in northern Canada.

At the same time, although it now seems likely that the primary cause of the disease is a canine distemper virus—the presence of the virus has been shown in almost all the affected seals, and the symptoms reported are very similar to those found in dogs—many continue to fear that the dumping of toxic wastes has exacerbated the impact of the disease.

"We do not need pollution as an explanation; but the extent and the seriousness of the spread of the disease could well have been aggravated by a malfunction of the immune system in the seals," says Albert Osterhaus, head of the Department of Immunobiology at the National Institute of Public Health and Environmental Hygiene at Bilthoven in the Netherlands, who last week published in *Nature* the result of tests identifying the primary cause of the disease as either canine distemper virus or a closely related morbillovirus.

A month earlier, Osterhaus announced evidence for the presence of a herpes virus and a picorna-like virus in many of the infected seals, suggesting one (or both) of these probably caused the outbreak of a disease which has now killed an estimated 9,000 out of the 15,000 to 16,000 common (harbor) seals previously found along the North Sea coasts of the Netherlands, West Germany, Denmark, Sweden, and Norway, and has recently been spreading among the seal population in the United Kingdom.

Osterhaus now says that, because both viruses were only found in a relatively small number of the infected seals, he has concluded that they are secondary infections. He has isolated the distemper virus which two Swedish scientists, Anders Bergman and Brendt Klingeborn, suggested in mid-August as a possible culprit, and his group has begun work on a vaccine which would be used to protect uninfected seals that are brought into sanctuaries.

Given that even an effective vaccine will be of little use in protecting seals in the wild, attention is turning to epidemiological studies to understand how the disease has spread. Distemper is known to be transmissible by aerosols, and so could be passed from one seal to another by coughing, particularly since pinnipeds tend to live in close physical contact.

"One hypothesis is that the disease originated in an outbreak of distemper among the Arctic foxes on Baffin Island, which then migrated across into Greenland," says John Baker, a veterinary pathologist specializing in seal diseases at Britain's Liverpool University. This could have been the cause of a major epidemic of the disease among huskies in Greenland recorded last winter. Reports that some of the carcasses of the dead huskies were subsequently thrown into the sea could also explain how the virus was able to make a sudden, massive assault on the seal population.

How far the disease has already spread is uncertain. In Britain, which has about 20,000 common seals, 200 to 300 have been washed up dead on east coast beaches over the past month, and the distemper virus has shown to be present in serum samples from the most recent ones to be tested.

Baker at Liverpool University says there is no evidence the disease has yet reached the Irish Sea on England's northwest coast. However, he adds that there have been an excessive number of deaths among grey seals in the area in recent months, the same virus may be implicated.

If the disease does spread among Britain's 90,000 grey seals with anything like the 60 to 70% mortality rate found in the common seals in the Dutch Wadden Sea, "the consequences would be horrifying," says Stephan Ormrod, of the Wildlife Department of the Royal Society for the Prevention of Cruelty to Animals (RSPCA).

Some scientists now fear that the seal disease may not remain confined to Europe. "I feel that this is not going to stop at Great Britain, but could spread around the coasts of the world, moving from one seal population to another," says ecotoxicologist Paul Johnston, Greenpeace research fellow at the School of Biological Sciences at Queen Mary College, London.

The outbreak poses a major dilemma to animal protection groups such as Greenpeace and the RSPCA, caught between a desire to care for as many infected seals as possible, providing they are not suffering too much distress, and the advice of those who say that all seals found with the infection should be destroyed.

"At present, we still feel it is appropriate to try to care for infected seals; indeed, given how the disease is spreading, every seal saved could be vital," says Ormrod of the RSPCA, which is setting up a mobile care unit on the east coast to assess methods for looking after infected seals based directly on those developed at the seal sanctuary at Pieterburen in the Netherlands. "But in a week, or 2 weeks' time, we may have a different view; and beyond that, we are in the realm of speculation."

Others also warn of the danger that excessive focus on the viral origins of the disease could reduce the attention given to the role that toxic chemicals dumped into the sea may have had in causing the disease to spread with such a devastating effect.

"From the pollution point of view, the identification of the distemper virus does not really alter anything," says Johnston of Queen Mary College. "I still feel that pollutants, in particular polychlorinated biphenyls (PCBs), are part of the problem, since they may allow the virus to spread rapidly in an immune-suppressed population." There is, as yet, no clear evidence linking toxic chemicals to the seal disease. "But it would be foolish not to look." ■ DAVID DICKSON

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Isle of Sylt *sanctuary is a haven for sick seals.*