What you need to know about jellyfish attacks on salmon farms

October 25 2013, by Rebecca Helm

Pretty but nasty. Are they really to blame? Credit: Stefan Siebert

Tens of thousands of farmed salmon are dead after a swarm of mauve stinger jellyfish swept through an open-ocean salmon farm in Ireland. Tourists in France and Spain must contend with these summer visitors, too. Where are these mauve stingers coming from? Why now?

It's not easy to answer. This is not the first time this has happened. In 2007 a massive mat of these jellyfish spread over 10 miles decimating another salmon fish farm in Northern Ireland, costing more than US$2m in damages.

Where are they coming from? Mauve stingers are an anomaly among jellyfish. And its strangeness also makes it difficult to track them. Most jellyfish break their lives into two parts: a larval and adult phase. First comes the bread-crumb sized larva, called a polyp, which lives on the seafloor. When conditions are right the polyp undergoes metamorphosis into a stack of tiny jellyfish, which grow into larger, more familiar adult jellyfish.

But that is not mauve stinger's story. It grows from an embryo directly into a tiny jellyfish, skipping the polyp stage. Without being tied down by a polyp, it is free to roam the world's oceans, like a butterfly that never has to touch the ground. This nomadic life makes the arrival of the mauve stinger difficult to predict.

Only last year it was discovered that mauve stingers live year-round in the Mediterranean sea, and that summer swarms in Italy, France and Spain may be due to changes in ocean currents and wind patterns, rather than jellyfish numbers. This makes long-term sense. In the Mediterranean, the occurrence of the mauve stinger has been recorded for over 200 years. With these data scientists have discovered that the arrival of mauve stingers can be predicted, at least in the Mediterranean. Warm, dry summers increase the chances of beach encounters with the mauve stinger along the Riviera.

Could these same patterns of increase and decline also occur in other parts of the world? Absolutely. Tom Doyle, the head of the Big Jellyfish Hunt, has said the jellyfish were abundant for years after 2007. The Big Jellyfish Hunt is a collaborative effort to track jellyfish in the Irish sea

using citizen reports. "After the 2007 bloom, the mauve stinger then disappeared for several years," he told me. "2013 is the first year that they have been around in abundance." These observations hint at larger trends, but scientists aren't yet sure.

Until Doyle and colleagues have collected enough information to begin making predictions, researchers are experimenting with other methods for protecting businesses and beaches from the mauve stinger's impact. Unlike recently unveiled robot-aided jellyfish killing machines, which shred jellies by the thousands, they are trying less invasive techniques. These include improved salmon pen designs and bubble curtains, which create a constant stream of bubbles around pens, preventing jellyfish from passing through.

But for these strange and beautiful creatures, the big questions still remain largely unanswered. Are there always giant purple mats of this jellyfish, stretching for miles in the open ocean? And would that really be so bad? These ethereal jellies likely play an important role in the health of ecosystems, including as food for animals like loggerhead sea turtles and bluefin tuna. With their vivid color and bright bioluminescence, if they are out there somewhere, that is something I would like to see.

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