

## TAGGING SOLVES PART OF SOCKEYE MYSTERY<sup>1</sup>

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When researchers fitted 200 young salmon with acoustic tags in the spring of 2007, they had no idea those fish would later help pinpoint the “crime scene” for one of the biggest environmental disasters ever to strike the West Coast. But as it turned out, the ground-breaking study, which tracked a small school of fish out to sea and two years later picked up a pair of survivors on the inbound journey, has provided a vital clue into what happened to nearly 10 million Fraser River sockeye salmon that vanished in 2009.

“It’s a world first,” David Welch, president and CEO of Kintama Research Corporation, said of the study, which he described briefly on Monday in giving expert testimony on the opening day of the Cohen Commission of Inquiry. “Our contribution has been to narrow down the likely location for the mortality, but not demonstrate the cause,” he said.

Headed by British Columbia Supreme Court Justice Bruce Cohen, the federal inquiry is charged with finding out why only about one million sockeye returned to the Fraser in 2009, when more than 10 million had been expected. Dr. Welch said in an interview that the 200 young fish were tagged as part of a study into Cultus Lake sockeye, a small, endangered sub-population found on the lower Fraser River. The Cultus fish went to sea at the same time and followed the same ocean migration route as millions of other young sockeye that left the Fraser that spring – fish that would later disappear en masse.

Dr. Welch, whose company has pioneered research using an array of acoustic sensors set along the continental shelf, said the tagged fish were tracked out of the Fraser and north, through Georgia Strait. It has long been speculated the most likely location for the mass mortality of Fraser stocks was at the river’s mouth, because the transformation from fresh to salt water is often traumatic for salmon. Others have suggested fish farms, clustered near the north end of Vancouver Island, may be to blame. But the tagged fish moved rapidly past the north end of Vancouver Island before their signals were lost. The fish never reached the next monitoring post, in Alaska. “Between the north end of Vancouver Island and Alaska, the fish seemed to stop migrating,” Dr. Welch said in an interview.

He said his data, and information the Department of Fisheries and Oceans collected in netting surveys, shows the Fraser sockeye run met its end in Hecate Strait, shortly after passing Broughton Archipelago, at the north end of Vancouver Island. “This raises the issue of whether the poor marine survival was caused by disease transfer from the fish farms in this region or if other factors (e.g., poor ocean conditions) were responsible, or if there was perhaps a combination of impacts,” he said in a written submission.

The telemetry study was unique because it not only tracked salmon going out, but picked up the survivors on their return by putting the transmitter batteries to sleep for two years, then restarting them when the fish were expected back in B.C. waters. He said researchers were delighted when two inbound signals were detected in July, 2009. The fish, returning from a migration circuit that covered thousands of kilometers of ocean, arrived back at the southern end of Vancouver Island on the same day.

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Dr. Welch said none of the other 200 fish survived, reflecting the collapse of the broader Fraser run.

Mary Ellen Walling, executive director of the BC Salmon Farmers Association, said last year's sockeye collapse was followed this year by the biggest return in nearly a century, which clearly indicates fish farms are not hurting wild stocks. "It's a very complicated issue . . . [and] we need to look at all the factors," said Ms. Walling. "[But] our data from our farms doesn't indicate disease issues or lice issues."