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A Rogue Climate Experiment Outrages Scientists

By HENRY FOUNTAIN

A California businessman chartered a fishing boat in July, loaded it with 100 tons of iron dust and cruised through Pacific waters off western Canada, spewing his cargo into the sea in an ecological experiment that has outraged scientists and government officials.

The entrepreneur, whose foray came to light only this week, even duped the National Oceanic and Atmospheric Administration in the United States into lending him ocean-monitoring buoys for the project.

Canada's environment ministry says it is investigating the experiment, which was carried out with no government or scientific oversight. A spokesman said the ministry had warned the venture in advance that its plan would violate international agreements.

Marine scientists and other experts have assailed the experiment as unscientific, irresponsible and probably in violation of those agreements, which are intended to prevent tampering with ocean ecosystems under the guise of trying to fight the effects of climate change.

Though the environmental impact of the foray could well prove minimal, scientists said, it raises the specter of what they have long feared: rogue field experiments that might unintentionally put the environment at risk.

The entrepreneur, Russ George, calling it a "state-of-the-art study," said his team scattered iron dust several hundred miles west of the islands of Haida Gwaii, in northern British Columbia, in exchange for \$2.5 million from a native Canadian group.

The iron spawned the growth of enormous amounts of plankton, which Mr. George, a former fisheries and forestry worker, said might allow the project to meet one of its goals: aiding the recovery of the local salmon fishery for the native Haida.

Plankton absorbs carbon dioxide, the predominant greenhouse gas, and settles deep in the ocean when it dies, sequestering carbon. The Haida had hoped that by burying carbon, they could also sell so-called carbon offset credits to companies and make money.

Iron fertilization is contentious because it is associated with geoengineering, a set of proposed strategies for counteracting global warming through the deliberate manipulation of the environment. Many experts have argued that scientists should be researching such geoengineering techniques — like spewing compounds into the atmosphere to reflect more sunlight or using sophisticated machines to remove carbon dioxide from the air.

But tampering with the environment is risky, they say, so any experiments must be carried out responsibly and transparently, with the involvement of the scientific community and proper governance.

"Geoengineering is extremely controversial," said Andrew Parker, a fellow at the Belfer Center at the Kennedy School of Government at Harvard. "There is a need to protect the environment while making sure safe and legitimate research can go ahead."

Mark L. Wells, a marine scientist at the University of Maine, said that what Mr. George did “could be described as ocean dumping.”

Dr. Wells said it would be difficult for Mr. George to demonstrate what impact the iron had on the plankton and called it “extraordinarily unlikely” that Mr. George could prove that the experiment met the goal of permanently removing some carbon dioxide from the atmosphere.

NOAA acknowledged that it had provided the project with 20 instrument-laden buoys that drift in the ocean for a year or more and measure water temperature, salinity and other characteristics. Such buoys are often sent out on what the agency calls “vessels of opportunity,” and the data they provide, uploaded to satellites, is publicly available.

But a spokesman said the agency had been “misled” by the group, which “did not disclose that it was going to discharge material into the ocean.”

The nature of Mr. George’s project was first reported this week in an article in *The Guardian*, a British newspaper, after it was revealed by the ETC Group, a watchdog group in Montreal that opposes geoengineering.

Mr. Parker, of Harvard’s Kennedy School, said it appeared that the project had contravened two international agreements on geoengineering, the London Convention on the dumping of wastes at sea and a moratorium declared by the United Nations Convention on Biological Diversity — as well as a set of principles developed at Oxford University on transparency, regulation and the need for public participation.

Mr. George, said that his experiment was not related to geoengineering, and that 100 tons was a negligible amount of iron compared to what naturally enters the oceans. “This is a community trying to maintain its livelihood,” he said of the Haida.

He said his team had collected a “golden mountain” of data on the plankton bloom. Mr. George, who described himself as chief scientist on the project and said he has training as a plant ecologist, refused to name any of the other scientists on the team.

Scientists who have been involved with sanctioned iron fertilization experiments strongly disputed Mr. George’s assertion about the quality of his experiment, saying that it was roughly 10 times bigger than any other but that the fishing boat used and the science team were clearly insufficient.

Victor Smetacek, an oceanographer with the Alfred Wegener Institute for Polar and Marine Research in Germany who recently published an analysis of the last sanctioned experiment, one in 2009 in the Southern Ocean, said Mr. George’s project would give a black eye to legitimate research. “This kind of behavior is disastrous,” he said, describing Mr. George, with whom he had brief contact more than five years ago, as a “messing around, bumbling guy.”

Mr. George, 62, of Northern California, was previously in the public eye when, as chief executive of a company called Planktos, he proposed a similar iron-fertilization project, in the equatorial Pacific west of the Galápagos Islands, whose purpose was the sale of carbon offsets. Under cap-and-trade programs in various countries, polluters can offset their emissions of greenhouse gases by buying credits from projects that store carbon or otherwise mitigate global warming.

The project was canceled in 2008 after what his company called a “disinformation campaign” by

environmentalists and others made it impossible to attract investors.

Mr. George said that during that period he was contacted by the Old Massett Village Council, one of two Haida groups on Haida Gwaii, about “wanting to do something about their fish,” which had suffered population declines.

But John Disney, the council’s economic development director, said he had worked with Mr. George on other projects before, including one to generate carbon credits by replacing alder forests on the islands with conifers. That project never came to fruition.

Mr. Disney defended the iron sprinkling project, saying that it had been approved by Old Massett’s villagers and cleared by the council’s lawyers.

He said at least seven Canadian government agencies were aware of the project. But a spokesman for Canada’s environment minister said Thursday that the salmon group was twice warned in advance that its plan violated international agreements Canada had signed that would prohibit an iron-seeding project with a commercial element, the Canadian Broadcasting Corporation reported.

Mr. Disney also said that the marine science community, including researchers at the Wegener Institute in Germany, had known about the project.

But Mr. Smetacek disputed that as well. “I’ve had no contact with this guy on this,” he said, referring to Mr. George.

Ian Austen contributed reporting from Ottawa.

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