

STEVEN SOLOMON (1950–2011)

Steven Mark Solomon, geologist, Arctic coastal scientist, mentor, and caring friend to many, passed away in Halifax, Nova Scotia, on 20 August 2011, two months and two days short of his 61st birthday. He is greatly missed by friends and colleagues around the world for his inventive mind, infectious enthusiasm for Arctic science, love of good food, and deep humanity. Steve grew up in Hartsdale, New York, graduated from Middlebury College in 1972, and completed his MSc in geology at Memorial University of Newfoundland in 1986. Before his first involvement with the Arctic at the age of 40, Steve had had a full and varied career. This included working a Vermont farm with horses and producing maple syrup, as well as experience as a bicycle courier in San Francisco, a salmon fisherman in Oregon, and a mud-logger on rigs in Montana and western Canada. Shifting slowly northward, he co-founded a small mineral exploration company, prospecting in northern British Columbia and Yukon, and worked with C-CORE (Centre for Cold Ocean Resources Engineering) on marine placer minerals in Newfoundland.

When Steve Solomon was hired by the Geological Survey of Canada (GSC) in October 1990, he found his true calling. Working out of the Bedford Institute of Oceanography in Dartmouth, Nova Scotia, he was charged with developing a research program on coastal geohazards and constraints to development in the western Canadian Arctic. Steve threw himself into this work with drive and enthusiasm, rapidly establishing a reputation as an expert on Arctic coastal processes and the complexities of the Mackenzie Delta, the second-largest delta on the Arctic Ocean. Widely recognized for his open disposition, Steve freely shared his knowledge with a host of contacts in governments, industry, universities, the media, and the international polar science community—and especially with residents of the Inuvialuit Settlement Region. He visited all six Inuvialuit communities on a number of occasions. A frequent temporary resident of Inuvik and Tuktoyaktuk, he was a well-known figure throughout the region.

At the GSC, Steve was a natural leader, always open to new ideas and technologies, always asking questions others didn't think to ask, always thinking ahead, always first to work in the morning, invariably organized no matter how disorganized his office. Although Steve's career was focused on the western Canadian Arctic, he made important contributions in other areas as well, including studies on the feasibility of removing a 1950s causeway in Prince Edward Island, a project on the outer Fraser Delta in British Columbia, and a desk study of shore crossings and foundation conditions for a pipeline across Baydaratskaya Bay [Байдаратская Губа] in the Russian Arctic.

In the mid-1990s, Steve was seconded to the South Pacific Applied Geoscience Commission (SOPAC; now the Applied Geoscience and Technology Division in the Secretariat of the Pacific Community), based in Suva, Fiji. Steve was the first to go to SOPAC under a Memorandum



Steve Solomon, Mackenzie Delta, 2009. (Photo credit: Donald L. Forbes.)

of Understanding between that agency and the GSC, and he made a strong impression with an insightful report on coastal hazard issues in Apia, Samoa. Returning a year and a half later, he took on several challenging projects, including work on coastal circulation and habitat enhancement for black pearls in the remote Northern Cook Islands atoll of Manihiki. He also worked on coastal vulnerability to climate change in Tarawa (Kiribati) and the Suva region in Fiji. This work undoubtedly benefited from Steve's natural skills in diplomacy, not to mention his Arctic experience of logistics in remote areas, which found a parallel in the South Pacific.

After his return from Fiji, Steve was recruited to apply his marine geoscience skills to contaminant mapping and cleanup at northern radar sites in the eastern Arctic and Labrador. He spent many weeks over five years in Saglek Fjord, a remote and spectacularly beautiful part of the country, where the work included mapping, coring, and oceanographic moorings from a small chartered vessel. I'm sure Steve's old Oregon fishing skills played a part in the success of this program. In 2003 another project took him to the west coast, where he sampled sediments on the Fraser Delta using a Coast Guard hovercraft, just one of several innovative and unusual survey vehicles and other types of scientific equipment that Steve employed. An earlier example, in 1991, was the amphibious Coast Guard *Arktos-β*, which looked like two WW-I army tanks hooked together and painted red and white. This craft could lumber around on land or water and, with several generators going on the upper deck, it was audible for miles around. While this

experiment was not repeated, it demonstrated from Steve's first GSC field season that he was always thinking about new ways to collect elusive data.

In 1999, Steve partnered with Jerry Brown to convene a workshop at Woods Hole that led to the creation of the Arctic Coastal Dynamics Project under the auspices of the International Arctic Science Committee. This project involved scientists from around the Arctic: Russia, the United States, Canada, Norway, Germany, Netherlands, and other countries. Steve was a mentor and played a leading role for many years at meetings in Potsdam, Oslo, Groningen, Montréal, St. Petersburg in Russia, and Fairbanks in Alaska. The vision of a circumpolar digital map that he helped to develop in 1999 came to fruition and was published in 2011. Over the years, Steve also contributed his knowledge and wisdom to the Arctic Climate Impact Assessment and the State of the Arctic Coast 2010 report, among many others. Meanwhile, in his own work on the Mackenzie Delta, Steve pioneered the use of satellite-borne synthetic aperture radar to map the seasonal development and distribution of bottomfast ice. This was an important scientific innovation that also facilitated more use of seismic vibrators and less of explosives for hydrocarbon exploration in the outer delta. He demonstrated the value of interferometric sidescan sonar and multibeam technology for mapping the very wide and shallow nearshore region off the front of the delta. Steve played an important role in two projects in the International Polar Year, contributing new knowledge of delta flooding processes and their impacts. He also led projects that acquired new understanding of river discharge and ice interactions during breakup flooding each spring, including the first documentation of strudel scour and subsequent infill in the Canadian Beaufort region and of the role of bottomfast ice in determining strudel drainage distribution. For many years, Steve authored a daily Mackenzie Delta Spring Breakup Newsletter through the spring melt season, from early May to mid-June. Over time, the e-mail distribution list grew to more than 200. Despite his illness, Steve took up this task again enthusiastically in the spring of 2011.

Steve was the consummate field geologist, at home in a rough camp, small boat, or helicopter. In camps, whether out in the field or at a base in Inuvik, he whipped up fantastic curries, soups, and stews. In winter field programs in the Mackenzie Delta, he persevered under the most arduous

conditions: when the electronics were giving up in the cold, when colleagues wondered how they would survive the day, Steve inspired confidence and focused on the task. Steve's field notes are legendary. They record everything. Among the most memorable was this from August 2005: "Turned around bad weather @ 1900, arrived at abandoned shack @ 2000. Dinner pepperoni, sandwich and tea, sleep sitting up, bear paw prints on bed spread." Steve always seemed to have a positive attitude, no matter how adverse the circumstances. He had a wonderful sense of humour, often self-deprecating, and held onto this throughout his journey with cancer.

Steve leaves his spouse and partner Sarah-Marie, his son Reuben and Reuben's fiancée Melanie, his mother Edith Solomon, his brother Ken Solomon and sister Suzy Hooper with their spouses, his nieces and nephew, and many close cousins. Reuben's calling as a helicopter pilot was undoubtedly influenced by Steve's love of flying and travels in the Arctic. The wooden boat that Steve inspired his family to build together during the months of his illness is a work of art and a floating memorial.

Steve was a highly respected scientist of international stature. His intelligence, creativity, and enthusiasm shone through. His perseverance and work ethic were remarkable. Above all, his honesty, integrity, and generosity were fundamental to his character. To the very end, he never lost his thirst for knowledge, his joy in sharing new discoveries, his desire to help share an understanding of how the world works. Steve faced his illness over many months with extraordinary grace and courage. He was always thinking of how to make things easier for others. This core humanity, which touched so many, is his true legacy. Steve's impact on Arctic science, and above all, on his wide circle of friends and colleagues around the world, lives on and will not be forgotten.

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