

Iliamna Lake Traditional Knowledge Interviews of Seismic & Extreme Weather Events; Observations of Climate Change – *Executive Summary and Interview Transcripts*

Kathryn Hohman-Billmeier, Co-Principal Investigator; Caleb Billmeier, Co-Principal Investigator

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This summary is based on traditional knowledge interviews conducted by Ground Truth Trekking in four Iliamna Lake communities from March 7 to April 2, 2013. The purpose of this study is to learn from elders and other culture bearers in the region about earthquakes, extreme weather, climate change, and other hazards arising from the natural environment over the long-term. This project is funded in part by the Western Mining Action Network/Indigenous Environmental Network (WMAN/IEN), and Alaska Conservation Foundation (ACF), as well as Ground Truth Trekking's own funds, and in-kind contributions from the scientists involved in this study.

Traditional knowledge exists at the nexus of personal experience and the experiences of those who came before. As such, it is not possible to “preserve” traditional knowledge simply through documentation; it cannot be maintained without the component of experience. This research seeks to forge an alliance between traditional knowledge and ongoing earth science investigations in the region. Kate Hohman-Billmeier and Caleb Billmeier, Co-Principal Investigators in this study, utilized semi-directed interviews to engage with 19 lake residents in the perennial villages of Kokhanok, Igiugig, Newhalen, and Pedro Bay. The study team sought after those individuals who maintain knowledge of the cultural, historical, and physical landscapes of the region. These individuals were identified through recommendations from local Village Councils and other participants in the study. In total, eight people were interviewed in Kokhanok, four in Igiugig, four in Newhalen, and three in Pedro Bay. Interviews most commonly lasted from 45 minutes to an hour; interviews were audio recorded and transcribed.

During these conversations, Iliamna Lake residents provided descriptions of seismic and extreme weather events, as well as observations of climate change. Seismic events in the region were generally reported to be infrequent and relatively minor, though most respondents spoke of their experiences with the magnitude 9.2 earthquake on March 27, 1964 that devastated some urban areas of the state. During this event, respondents reported feeling extreme shaking of the ground, accompanied by breaking ice on the lake, a minor rise in lake water levels, some shifting of local rivers and creeks, swaying trees, and limited flooding; damage to property was reported to be minimal. Some respondents spoke of small-scale landslides originating from bluffs around the lake and along the Kvichak River, though this was mostly attributed to heavy rainfall as opposed to seismic activity. Stories of earthquakes passed down from previous generations were not commonly documented.

Prior to fieldwork, the study team identified specific geologic features that could be indicators of past seismic activity. These indicators, including warped or swirled sand layers, layers of peat beneath sand/gravel deposits, and cracks or sunken areas in the tundra, were used to inform certain questions asked during the interviews, and these types of features were photographed as the study team traveled overland between lake communities. Of particular interest are bluffs of loose gravel or sand, as opposed to hard rock, where some of these features are apparent. Some individuals identified specific locations around the lake, such as the northwestern end between Igiugig and Lower Talarik Creek, east of

Kokhanok, and between Big Mountain and Igiugig, where such bluffs exist. These sites were reported to be actively eroding, and could serve to inform future geologic field investigations related to seismic activity.

Most respondents reported experiences with volcanic eruptions, particularly ash fallout from one of several active volcanoes stretching down the western side of Cook Inlet and along the Alaska Peninsula. Several stories were shared about the Mount Katmai eruption of 1912, recollections that are now one generation removed but still palpable in the collective memory of lake residents. This event was said to have initiated years of food scarcity and hardship as residents struggled to provide for their families; participants spoke of knee deep ash and its effects on salmon returns, water quality, and large game availability. More recent eruptions were reported to have deposited smaller amounts of ash, with no ill effects experienced by residents of lake communities.

Lake Iliamna residents uniformly discussed experiences with extreme weather, including high winds, heavy snowfall, and seasonal rainstorms. Several respondents described intensifying winds over the course of their lifetime, while others said they had observed no change in storm events since their childhood. Stories of extreme storm events are common, as extreme weather is a normal part of existence for Iliamna Lake residents. Some stories from previous generations include tragic outcomes, and are commonly accompanied by lessons for surviving such events in the future.

Residents with long-standing connections to the Iliamna Lake region shared many stories passed down from previous generations that contain cues to the nature and severity of weather cycles one or more generations removed. Through the sharing of these stories, multi-generational narratives of a changing climate could be amassed. Respondents discussed decreasing snowfall, increasing rainfall, warming ambient temperatures, later freeze up dates, and earlier breakup. One change that was discussed by several respondents was the nature of lake ice; ice conditions were commonly said to be increasingly volatile, making it more difficult to travel by snowmachine during the winter months, and impacting access to seasonal ice fishing grounds. Some lake residents observed new species of plants and animals in the region that had not previously been there, and the conspicuous absence of certain subsistence resources. Some respondents felt that the overall climate has remained consistent, however, most of those interviewed described less dependable weather cycles in comparison to those experienced by previous generations.