

To: NOAA National Marine Sanctuary Program

15 November 2016

Re: St. George Island, Pribilofs, Alaska Sanctuary Nomination

To whom it may concern,

This letter is in support of the sanctuary nomination involving St. George Island, Pribilofs, Alaska.

Since 1988, I have conducted scientific research on the Pribilof Islands of St. George and St. Paul. This work has focused on northern fur seals (*Callorhinus ursinus*) and Pribilof (arctic) foxes (*Alopex lagopus pribilofensis*). The Pribilofs are home to the largest concentration of breeding northern fur seals, contain haul-outs of Stellar sea lions (*Eumetopias jubatus*) and house nesting colonies of hundreds of thousands of seabirds covering a broad range of species. The seals and sea birds all forage in the surrounding waters during the summer breeding season, while many migratory birds utilize the Pribilofs as a crucial layover point especially during spring and fall. Other endemic species also occur on these islands, including the Pribilof Shrew (*Sorex pribilofensis*).

Pribilof foxes are an endemic subspecies (Pengilly 1984) and depend almost entirely on marine resources (fur seals and sea birds) as food (White 1992). Thus, they represent a key link in the marine and terrestrial ecologies of this unique island group.

The effects of climate change are readily apparent in the Bering Sea, especially as they relate to warmer ocean waters and decreased frequency of ice events (both sea ice and land ice) around the Pribilof Islands. Warmer waters reduce access to key marine invertebrate and vertebrate food resources thereby negatively impacting pinnipeds and birds, while reduced frequency and extent of sea ice has already drastically reduced the potential for fox immigration, thereby increasing the risks of inbreeding depression among these small, insular fox populations (Geffen et al. 2007). Human activities further threaten the endemic fox populations (White 2010).

Additionally, a new study suggests that a naturally-occurring bacteria, that can produce a fatal condition in the Pribilof foxes, is transported through the marine environment by the fur seals (Spraker and White 2016). The marine/terrestrial connectivity in the Pribilof Island group is further illustrated by another new study that measured persistent organic pollutants (POPs) in Pribilof foxes and found very high concentrations of several compounds. Because the foxes rely on seals and sea birds as food, fox exposure to these compounds is assumed to be through ingestion of marine resources (Bolton et al. In Press). Both of these findings have important ramifications for human health, as marine resources (including fur seals) from the Pribilof area are harvested and consumed by humans.

In summary, the Pribilof Island ecosystem is unique in housing endemic species as well as supporting some of the world's largest concentrations of breeding animals. The ecosystem is currently facing a variety of challenges that include natural (climate change) and anthropogenic (POPs) factors. Nomination of St. George Island as a sanctuary can help to focus attention on this region, and serve as a platform for future monitoring and educational efforts vital to conservation.

Thank you very much for your consideration.

Best regards,

signed Paula A. White, PhD

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Pengilly, D. 1981. Variation in skull measurements of North American arctic foxes, *Alopex lagopus* L. and the taxonomic status of *A.l. hallensis* Merriam and *A.l. pribilofensis* Merriam. *M.S. Thesis*, University of Alaska, Fairbanks. 206pp.

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