Food for Thought: Regional Response to Avian Cholera in the Bering Strait Region of Alaska

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INTRODUCTION
The Bering Strait is the narrow international waterway that connects the North Pacific Ocean to the Arctic Ocean. Of the 15 coastal communities in the Bering Strait region, over 85% of subsistence harvested foods are marine wildlife and include seabirds that live in, or seasonally occupy, the region (Ahmasuk, 2008; Figure 1). The regional transportation and economic hub of the Bering Strait region is the community of Nome. Saint Lawrence Island (SLI) is located in the Bering Strait (Figure 2) with two subsistence-based island communities, Gambell and Savoonga. Reliance on marine resources remains essential for the nutritional, cultural, and economic needs of these communities. Changing sea ice conditions are bringing:
- Ecosystem changes that may alter the availability and accessibility of seabirds that are an important food resource to coastal communities
- Increased opportunities for novel disease outbreaks

OBJECTIVE
- Describe SLI and Nome (regional hub) response to the 2013 Avian Cholera mortality event.
- Provide “lessons learned” for future marine wildlife disease response in the Bering Strait region.

AVIAN CHOLERA EVENT
A novel seabird disease outbreak was reported on Saint Lawrence Island during late November 2013. Residents reported hundreds of seabird carcasses (Figure 3) washing ashore. At least five seabird species were affected, four of which are a regular community food resource and include Crested auklet (Aethia cristatella), Thick-billed murre (Uria lomvia), Common eider (Somateria mollissima), Glacous-winged gull (Larus glaucescens), and Northern fulmar (Fulmarus glacialis).

Federal, state, tribal, and other organizations mounted a cooperative investigative response (Figure 4) which resulted in:
- First confirmed report of avian cholera in Alaska (Bodenstein et al. in prep). Of note, avian cholera is a fast acting, contagious, and lethal disease in wild birds caused by the bacterium Pasteurella multocida.
- Avian cholera confirmed in species not typically associated with this disease (e.g., murrels, auklets, fulmars).
- An estimated seabird mortality of >6,000 seabirds (Kulitz et al. 2013, unpublished report).

DISEASE RESPONSE
FEDERAL / STATE AGENCIES
- Contracted and instructed SLI residents to conduct beach surveys to estimate mortality
- Contracted and instructed SLI residents to collect carcasses for diagnostic analyses and research
- Provided a press releases, fact sheet on avian cholera, dead bird disposal protocols, question/answer information sheet for some of the most common SLI residents’ public health and food security concerns
- Provided animal testing and disease diagnosis
- Provided bird disposal equipment to communities
- Maintained communications with SLI tribes and regional hub organizations

TRIBAL / REGIONAL ORGANIZATIONS (Continued)
- Regional organizations
  - Maintained a communication network with SLI residents, federal and state agencies, local conservation organizations, Bering Strait tribal offices as well as Northwest Arctic and North Slope Borough offices re. Data, updates, status
  - Facilitated the delivery of specimens to agency laboratories; maintained data and shipping records
  - Acted in a liaison capacity between all involved in the response
  - Produced collaborative outreach and update reports to SLI and other coastal communities throughout the Bering Strait region, including Russian communities.

Disease Response:
- Communicated updates to SLI residents and others

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Figure 1. The harvest of seabirds and/or eggs is an important food resource for regional communities. Photos: G. Sheffield

Figure 2. Saint Lawrence Island is located in Bering Strait.

Figure 3. Seabirds washed ashore near Savoonga, November 20, 2013 and included (A) northern fulmars, (B) thick-billed murrels, and (C) crest auklets. Photos: G. Sheffield/F. Kava


Figure 5. Examples of outreach materials collaboratively produced in Nome and distributed to regional coastal communities.

BERING STRAIT: FOOD FOR THOUGHT / LESSONS LEARNED
- Future wildlife disease responses must consider regional public health and food security concerns. Food safety, public health, and wildlife health remains a serious concern for coastal communities.
- Transboundary communications with Russian coastal communities and wildlife organizations is highly desirable. It is ethically responsible to alert Chukotka, Russia regarding regional public health concerns and to better understand the status and spread of a disease event occurring in shared wildlife populations.
- Agencies / organizations located in urban centers successfully integrated with existing regional communication networks (i.e. regional hub organizations/agencies: tribal offices) resulting in efficient and comprehensive communications.
- Wildlife disease detection in remote coastal areas is likely to occur by people actively engaged in the utilization of resources.
- Subsistence-based communities are the primary regional constituents of the federal and state resource management agencies.
- Reviewing and updating contact information in agency-based response plans to avian mortality events needs to be conducted annually.

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REFERENCES

