

Sabine's Gull (*Xema sabini*)

Vulnerability: Presumed Stable

Confidence: Very High

A gull of the Subarctic and Arctic, the Sabine's Gull, with its distinctive plumage, commonly nests in the Alaskan Arctic, often in association with Arctic Terns (*Sterna paradisaea*). This species typically nests near fresh water in swampy low-lying tundra, in tidal marshes, and on small coastal islands (Day et al. 2001). During the breeding season, aquatic insects and other invertebrates are their most important food items (Day et al. 2001). Sabine's Gulls spend their winters offshore primarily in subtropical and tropical coastal upwelling zones (Day et al. 2001). The northern Alaska population estimate is rarely surveyed extensively. Two surveys in 1996 indicate a population somewhere between 6,000 and 10,000 (Day et al. 2001).

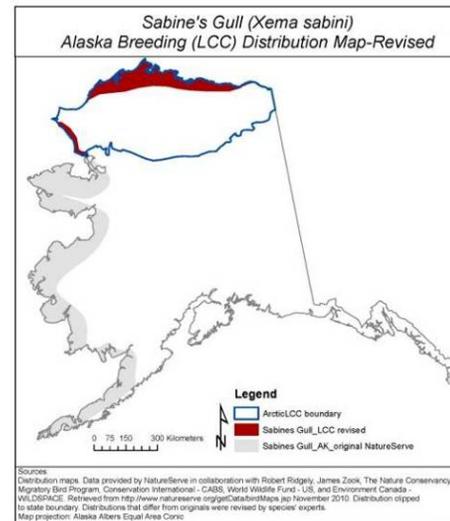


Range: For the CCVI, we adjusted the NatureServe Map to reflect the range map depicted in the Birds of North America account as the latter more accurately represented this species' range based on multiple accounts and expert opinion (Johnson and Herter 1989, Day et al. 2001, Bart et al. 2012, I. Stenhouse, pers. comm.).

Physiological Hydro Niche: Among the indirect exposure and sensitivity factors in the assessment (see table on next page), Sabine's Gull ranked neutral in most categories with the exception of physiological hydrologic niche, for which they were evaluated to have a "slightly to greatly increased" vulnerability. This response was driven primarily by this species reliance on small water bodies for foraging and for selecting nest sites (Stenhouse et al. 2005). Current projections of annual potential evapo-transpiration suggest negligible atmospheric-driven drying for the foreseeable future (TWS and SNAP). Thus atmospheric moisture, as an exposure factor (most influential on the "hydrological niche" sensitivity category), was not heavily weighted in the assessment. Any

potential drying trend could also be offset by changes in surface hydrology that create more nesting and foraging habitat (Martin et al. 2009). **Physical Habitat Restrictions:** Sabine's Gulls are not associated with any uncommon geological features.

Dietary Versatility: They have relatively high dietary versatility, allowing flexibility in response to any climate-mediated changes that would affect these aspects of this species life history.



Interactions with Other Species: Sabine's Gulls are described as nesting only in association with Arctic Terns in some places (i.e. Greenland). In other areas, however, such as eastern Canadian Arctic and in Arctic Alaska, the association with Arctic Terns is less strict. The interaction between these species may be related to combined nest defense however it is unknown if such an association would be impacted by climate change or result in any net benefit or impact (I. Stenhouse, pers. comm.).

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Vulnerability Factors	D	SD	N	SI	I	GI	Unknown or N/A
B1. Sea level rise			*				
B2a. Natural barriers			*				
B2b. Anthropogenic barriers			*				
B3. Human response to CC			*				
C1. Dispersal/Movement			*				
C2ai. Historical thermal niche (GIS)			*				
C2aii. Physiological thermal niche			*				
C2bi. Historical hydro niche (GIS)				*			
C2bii. Physiological hydro niche					*	*	
C2c. Disturbance regime			*	*			
C2d. Ice & Snow habitats			*				
C3. Physical habitat restrictions		*					
C4a. Biotic habitat dependence			*	*			
C4b. Dietary versatility		*	*				
C4d. Biotic dispersal dependence			*				
C4e. Interactions with other species			*	*			
C5a. Genetic variation							*
C5b. Genetic bottlenecks							*
C6. Phenological response			*	*			*
D1. CC-related distribution response							*

D=Decrease vulnerability, SD=Somewhat decrease vulnerability, N=Neutral effect, SI=Slightly increase vulnerability, I=Increase vulnerability, GI=Greatly increase vulnerability.

Phenological Response: Little is known about Sabine's Gull genetics and there are currently no long-term data sets for this species that indicate a change in phenology.

In summary, the results suggests Sabine's Gull will likely be able to adjust to climate and associated habitat changes predicted to occur in Arctic Alaska, at least during the 50 year timeline of this assessment.

Literature Cited

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Stenhouse, I.J., H.G. Gilchrist, and W.A. Montevecchi. 2005. Factors affecting nest-site selection of Sabine's Gulls in the eastern Canadian Arctic. Canadian Journal of Zoology 83: 1240-1245.

The Wilderness Society (TWS) and Scenarios Network for Alaska Planning (SNAP), Projected (2001-2099: A1B scenario) monthly total potential evapotranspiration from 5 AR4 GCMs that perform best across Alaska and the Arctic, utilizing 2km downscaled temperature as model inputs. <http://www.snap.uaf.edu/data.php>.