

Sanderlings



Species Description

Sanderlings (*Calidris alba*) are small sandpipers associated with sandy beaches, which they utilize as migratory and non-breeding habitat across the globe. They are highly recognizable by their foraging behavior, which involves chasing receding waves and probing the sand in search of small crustaceans and bivalves and then running back ahead of incoming waves. While sanderlings primarily winter along coastal beaches, they can also be found on tidal mudflats, estuaries, and rocky intertidal areas. Breeding occurs only on tundra in the high Arctic, where the greatest sanderling concentrations occur at high latitudes in Canada, Greenland, and Siberia. They nest on the ground in shallow scrapes lined with leaves, alone or in loose colonies. As long-distance migrants, they travel several thousand miles annually and rely on a few key staging areas during migration. In California, sanderlings occur as spring and fall migrants as well as wintering birds, and they are one of the most common overwintering shorebirds in the Golden Gate Biosphere (GGB) region.

Species Vulnerability - Moderate

Sensitivity & Exposure - Moderate

Projected Changes	Trend
Sea level rise	▲ Increase
Precipitation	▲▼ Varies
Air temperature	▲ Increase
Storm surge	▲ Increase
Disease	▲ Increase

Potential Impacts:

- Reduced habitat availability and quality due to the loss of sandy beaches from sea level rise and storm surge
- Likely reductions in abundance of wintering sanderlings, correlated with higher winter precipitation amounts
- Significant reductions in Arctic breeding habitat suitability and phenological mismatches between breeding timing and peak invertebrate prey availability due to warmer temperatures
- Likely increases in disease-related mortality

Non-climate stressors may interact with climate stressors and disturbance regimes:

- *Residential/commercial development* reduces beaches and tidal habitats as well as migratory stopover sites, impacting habitat availability
- *Recreational use of beaches* disrupts foraging and roosting behavior, increasing energy outputs
- *Oil spills* impact body condition and survival, with sanderlings particularly vulnerable due to their propensity to forage and roost along sandy beaches
- *Peregrine falcons* prey on sanderlings, and their recovery may be a factor in population declines
- *Invasive species* have the potential to reduce preferred prey populations, although these impacts are variable across species



Sanderlings are dependent on sandy beaches and tidal mudflats as overwintering habitat, as well as migratory stopover sites within the Pacific Flyway and breeding habitat in the Canadian Arctic, putting them at risk due to climate changes or development that reduces habitat availability and suitability in any of these areas.

Species Vulnerability - Moderate

Adaptive Capacity - Moderate

Intrinsic factors (i.e., inherent characteristics) that enhance or undermine adaptive capacity:

Enhance:

- Globally-distributed species
- Highly mobile and are known to move long distances in response to prey availability
- Displays some flexibility in use of wintering habitats outside of sandy beaches

Undermine:

- Population declines in California and many other regions
- Dependent on habitat in disparate locations, increasing vulnerability to changes in any of these areas

Extrinsic factors (i.e., management potential) that enhance or undermine adaptive capacity:

Enhance:

- Generally strong support for shorebird conservation as well as wetland and coastal protection

Undermine:

- Challenging to limit recreational use of beaches



Their global distribution, high mobility, and flexible habitat use increase the ability of sanderlings to respond to changes in habitat suitability, but significant population declines suggest challenges associated with habitat degradation/loss and recreational use of beaches are significant.



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Adaptation Strategies & Actions

Adaptation strategies can reduce climate change vulnerability of a given ecosystem or species by addressing any or all of the three components of vulnerability (i.e., by reducing sensitivity, reducing exposure, and/or increasing adaptive capacity). The table below presents examples of adaptation strategies and actions, which fall within five categories, or approaches: Resistance/Resilience **(R)**, Acceptance **(A)**, Direct/Response **(D)**, Knowledge **(K)**, and Collaboration **(C)**. *Please note that the strategies and actions provided here should not be considered a checklist or plan, but rather as a set of examples for land managers to consider for further study when developing site- or species-specific actions.*

Adaptation Strategies	Adaptation Actions
<p>Protect and restore sandy beach habitat</p>	<ul style="list-style-type: none"> • Identify which beaches will be most resilient and prioritize those for increased protections (R/K) • Limit development and conserve sandy beaches, as well as areas where beaches may shift inland with sea level rise (R/D) • Protect and restore coastal dunes that provide a major sediment source for beaches (R) • Experiment with beneficial reuse of sediment to nourish key beaches while limiting impacts to sandy beach invertebrates (R/K)
<p>Reduce beach recreational uses to maximize sanderling feeding opportunities that support good body condition prior to migration</p>	<ul style="list-style-type: none"> • Limit motorized uses, off-leash dogs, and other intense human disturbance of sandy beaches (R) • Consider seasonal closures of important beaches to human activities during spring migration period (R)

Adaptation strategies and actions suggested by individual stakeholders (not discussed during the December 2023 adaptation workshop).



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