Where we work
The Alaska Maritime National Wildlife Refuge’s 3.4 million acres include spectacular volcanic islands of the Aleutian chain, expansive seabird cliffs of the remote Pribilofs and islands adjacent to the Alaska Peninsula, icebound lands washed by the Chukchi Sea, and majestically forested islands in southeast Alaska. This wide range of nesting habitats supports internationally significant numbers (some 40 million individuals representing more than 60 species) of seabirds.

How do we monitor this vast resource? Unfortunately it is impossible to visit every seabird colony every year. Instead, we selected a network of nine sites (roughly 500 miles apart) for detailed annual monitoring, and dozens of “intermittent” sites in between, which are visited less frequently.

What we study
We have two broad objectives:
1. Conserve our trust species
2. Test hypotheses about causes of change to understand ecosystem processes.

We don’t have the resources to study all of the seabird species nesting on the Refuge, so we selected a subset that represents distinct foraging guilds (piscivores and planktivores, surface-feeders and divers, near- and offshore feeders). We also target some species like red-legged kittiwakes, red-faced cormorants and whiskered auklets for which our Refuge represents a substantial portion of their range.

Our annual metrics are timing of breeding, reproductive success, population trend, diet, and adult survival. We conduct population counts every 2-5 years because numbers of these long-lived birds tend to vary at a decadal scale. We monitor other parameters every year because they vary on an annual scale and relationships will help us understand the causes of observed population change.
Black-legged Kittiwakes are small cliff-nesting seabirds that make their living in the open ocean, only visiting land for the brief breeding season when Refuge biologists unlock their pelagic secrets. Found around the pole in the northern hemisphere, these birds breed in colonies of a few tens of thousands, sometimes interspersed with their relatives, red-legged kittiwakes, which are found only in the Bering Sea. They feed at the ocean surface on fish and macrozooplankton.

In 2011, black-legged kittiwakes had widespread reproductive failure at all of their monitoring sites. No chicks or very few fledged at 5 of the 6 sites. Reproductive failure can come at any time of the nesting cycle (i.e., egg laying, hatching, or chick caring). At failed colonies in 2011, almost no eggs were laid and adults often didn’t incubate the few eggs that did ovulate. Of the nearly 300 eggs documented at the 5 failed colonies, only 8 hatched, all at St. Paul Island; only two of those chicks survived to fledge. The fact that the failure was widespread and occurred early in the season could mean it was related to broad oceanographic conditions from the previous winter or even the previous breeding season, rather than local conditions during the nesting period. In contrast, Bird Island, in the distant western Aleutians, had above-average reproductive success.

Population trends at these colonies were evaluated over the entire range of years for which we have data, as well as for just the most recent decade (2002-2011). Despite frequent breeding failures, black-legged kittiwake populations increased over the long term at Cape Lisburne and Bird Island, and remained stable at the other monitored colonies. Since 2002, kittiwakes have increased at Cape Lisburne and Chowiet Island; remaining stable elsewhere.

In 2011, Black-legged Kittiwakes failed to reproduce at 5 of our 6 monitoring sites.