



*Alagnak*

*Aniakchak*

*Katmai*

*Kenai Fjords*

*Lake Clark*

# Marine Birds

## Winter and summer surveys completed in both Kenai Fjords and Katmai

Both winter and summer marine bird surveys in Katmai National Park and Preserve (KATM) and Kenai Fjords National Park (KEFJ) were successfully completed in 2012 and 2013. Summer surveys were completed annually in both parks while winter surveys focused on KATM in 2012 and 2013 in KEFJ. The shoreline skiff surveys provide baseline information on species composition,

distribution, and density for populations of marine bird and mammal fauna that occur in the nearshore waters of KATM and KEFJ. SWAN is currently in the process of conducting a power analysis to assess the Network's ability to detect trends in density and composition. This exercise is expected to be completed in 2014 and will give the Network greater ability to interpret data from annual surveys.



Marine bird surveys are conducted using three people: an inshore observer, a vessel operator-observer, and a data recorder.

## Importance

Marine birds rely heavily on habitats and prey associated with the marine nearshore ecosystem of park coastlines. These species are top-level consumers of marine invertebrates, such as mussels, clams, snails, limpets, and forage fish. Because of these characteristics, marine birds are good indicators of change in the marine ecosystem. Monitoring focuses on birds that are trophically linked to the nearshore food web such as sea ducks (harlequin duck, Barrow's goldeneye, and scoters), mergansers, and black oystercatchers as well as various guilds of other marine birds (e.g., pigeon guillemots, blacklegged kittiwakes, and cormorants) that occupy other food webs or habitats. Monitoring these various guilds simultaneously may improve our ability to discriminate among potential causes of change in seabird populations and the nearshore ecosystem. Many of these species were impacted by the Exxon Valdez oil spill as well, and exhibited protracted recovery periods as a consequence of lingering oil in nearshore habitats. Public concern exists for the welfare of marine birds because they are affected by human activities like pollution and commercial fishing.

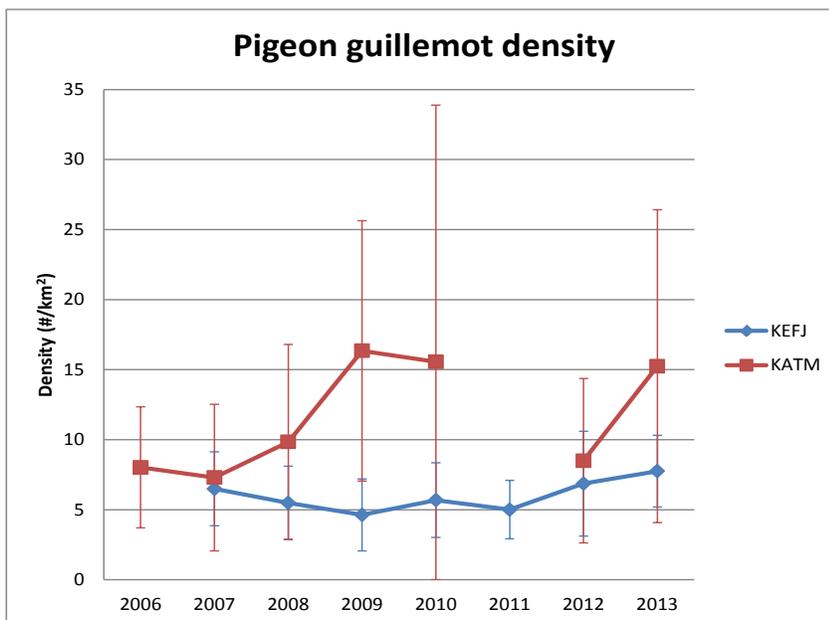
## Monitoring Approach

SWAN uses standardized, boat-based surveys in randomly selected portions of coastline to monitor the species composition, distribution, and density of several species of marine birds along the coasts of KATM and KEFJ. Summer surveys are conducted annually and winter surveys are conducted in each park on alternate years as weather permits. Marine bird surveys have been monitored in KATM and KEFJ since 2006 and 2007, respectively.

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### References

Coletti, H. A., T. A. Dean, K. A. Kloecker and B. E. Ballachey. 2013. Nearshore marine vital signs monitoring in the Southwest Alaska Network of National Parks: 2014. Natural Resource Technical Report NPS/SWAN/NRTR—2014/843. National Park Service, Fort Collins, Colorado. In preparation.



Example data: Density of pigeon guillemots in KATM and KEFJ, 2006-2013. KEFJ was not surveyed in 2006 and KATM was not surveyed in 2011.