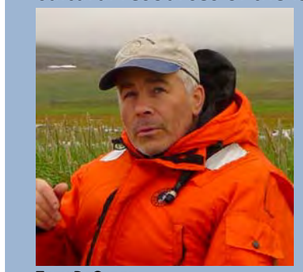
Expedition Participants

The voyage to the St. Matthew Islands was a collaborative effort that included 13 researchers from six different organizations. The team spent 9 days documenting the biodiversity of birds, mammals, insects, fish, plants, and cultural resources of the islands.

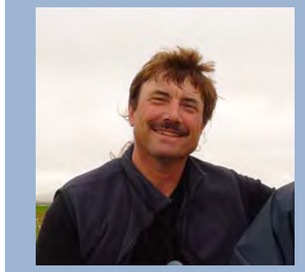


Tony DeGange
U.S. Geological Survey
Fish, Freshwater Invertebrates, Birds

Dennis Griffin
State of Oregon
Archeology

Monte Garroute,
University of AK Museum
Graduate Student - Botany

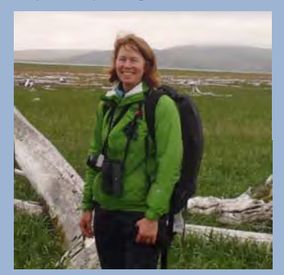
Heather Renner,
Alaska Maritime NWR
Supervisory Biologist



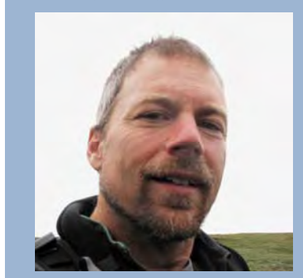
Rich Kleinleder
URS inc.
Climate, Hydrology

Derek Sikes
University of AK Museum
Arthropods

Casey Bickford
University of AK Museum
Graduate Student - Arthropods



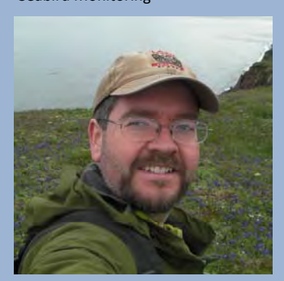
Marianne Aplin
Alaska Maritime NWR
Seabird Monitoring



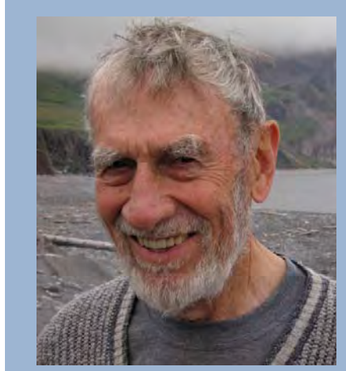
Ned Rozell
University of AK Geophysical Institute - Science Writer

Steve Delehanty
Alaska Maritime NWR
Refuge Manager

Marc Romano,
Alaska Maritime NWR
Bering Sea Unit Biologist



Aaron Poe
Aleutian-Bering Sea Islands LCC
Seabird Monitoring



Dave Klein, Professor Emeritus at the University of Alaska Fairbanks, likely knows more about St. Matthew Island than anyone else alive today. He has visited the island six times over the last 55 years and this year he returned to study geology, climate, and paleo-environment and their influence on the wildlife community.

This expedition would not have been possible without the hard work and dedicated support of the crew of the M/V Tiglax. They kept us safe, comfortable, and well-fed throughout the entire journey.

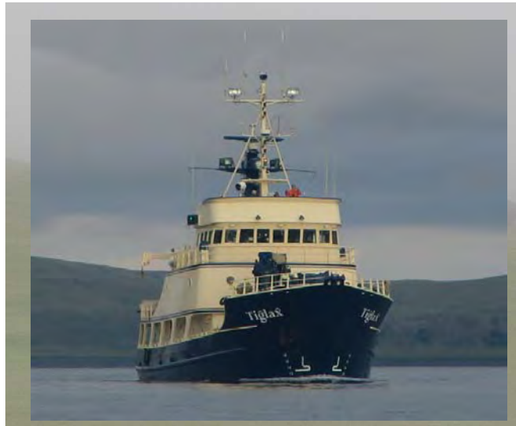
Alaska Maritime National Wildlife Refuge 95 Sterling Hwy #1 Homer, AK 99603 (907) 235-6546 http://alaskamaritime.fws.gov

Alaska Maritime National Wildlife Refuge

St. Matthew Islands Expedition 2012

Inside:

A scientific expedition to the most remote place in Alaska.



The Alaska Maritime NWR is unique among Refuges because it was created in part to support an international science program. The 2012 St. Matthew Expedition is an example of how collaborative, integrated research is achieved using the research vessel the *M/V Tiglax* as a platform. Although extremely difficult to reach, the St. Matthew Islands have long been recognized as an area of ecological significance by indigenous people and scientists. Similar to the earliest scientific expeditions to St. Matthew, including the Harriman Expedition of 1899, our team was a diverse group, including ornithologists, botanists, entomologists, ecologists and a writer.

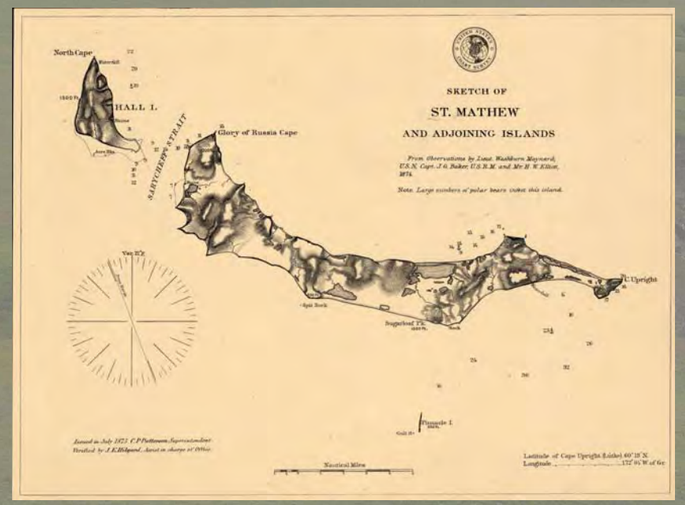
Seabird Monitoring

Alaska Maritime NWR monitors seabirds at eight annual (permanent, full-season) camps, as well as dozens of sites visited every 5-8 years. Data collected at these sites provide information about seabird demography and food habits. This information can help detect changes in bird populations and prey availability and also provides important information about the overall health of the oceanic ecosystem on which the seabirds depend.

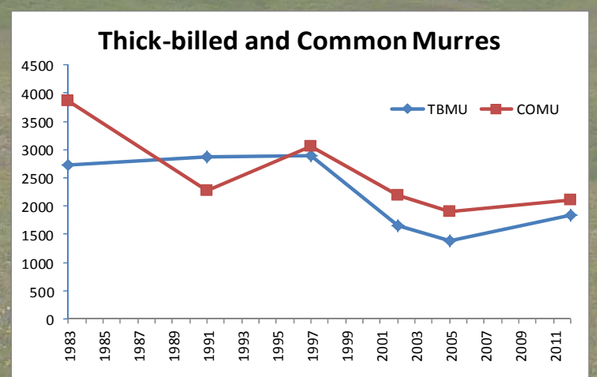
Hall Island, in the St. Matthew Island group, is a long-term seabird monitoring site. This island has specific marked cliff segments within seabird nesting colonies which have been counted approximately every five years since they were first established in 1983.

Science at Sea

On July 29, 2012, 13 researchers climbed aboard the M/V *Tiglax* and journeyed to the most remote place in Alaska to uncover the natural and cultural mysteries hidden on the St. Matthew Islands. The St. Matthew Islands, (St. Matthew, Hall, and Pinnacle), are part of the Alaska Maritime National Wildlife Refuge (NWR) and are located in the Bering Sea, over 200 miles from the nearest human settlement. Because it is so remote, St. Matthew is only visited by Refuge biologists about every 5 years. This journey was designed to provide a comprehensive, integrated snapshot of biodiversity in an area that may be particularly vulnerable to climate change.



This 1874 map of the St. Matthew Islands was one of the first detailed maps of the area. Courtesy of *American Geographical Society Library, Milwaukee, WI.*



Hundreds of thousands of seabirds, including kittiwakes, murres, fulmars, and cormorants, nest on the St Matthew Islands. However, data from these monitoring plots has shown that nearly all of these species have experienced population declines since 1983. It is unclear what has caused these declines, however similar declines over the same time period have been observed for these species at other seabird colonies in Alaska. Our data from this recent trip to St. Matthew suggests that both thick-billed and common murre (pictured at left) populations have stabilized and even increased slightly since our last visit to St. Matthew in 2005.

Biodiversity Studies

Birds—Approximately 40 species of birds were documented. The first sound recording was made of a singing McKay's bunting, a species that breeds only on the St Matthew Islands.

Mammals—Singing voles are endemic to the islands and were collected on this trip to provide valuable genetic information and become part of the University of Alaska Museum collection.

Fish and Aquatic Invertebrates—Freshwater fish were captured for contaminant studies, and aquatic invertebrates were collected for inventory purposes.

Arthropods—Entomologists collected terrestrial arthropods to catalogue what species live on the islands.

Special Studies

Climate and paleoenvironment—Major focuses of study in 2012 were geology, climate, and paleoenvironment and their influence on the wildlife community. We collected soil cores and rock samples to provide a reliable archive of the vegetative changes, associated climates, and related geological and stochastic events of the last 20,000 years. Additionally, these samples will help determine changes in rates of coastal erosion due to climate change and what effect this might have on seabird colonies.

Fox ecology—While arctic foxes are native to both Hall and St. Matthew Islands, red foxes have bred on St. Matthew only since the late 1990's and have seemingly eliminated all arctic foxes from the island. In contrast, on adjacent Hall Island, only arctic foxes were observed during this trip. Data gathered during this and previous trips may help explain the relationship between these two species and the potential impact of each of these species on seabird and singing vole populations.

New Plant Species—With the collection, identification, and cataloguing of 227 botanical specimens a definitive plant species list for St. Matthew is soon to be available. One species of plant, a blue Iris, was immediately recognized as one never before documented on the island. The crew also made collections of rare plants for the University of Alaska Museum, Royal British Columbia Museum, and the National Museum of Nature and Science in Japan.

Cultural Resources—Archeological investigations focused on a 400 year old Thule (ancestors of Inuit) occupation site and an 1810 Russian fur trapping expedition house. Artifacts found included pottery, bone tools, animal remains, a milled wooden floor, and a glass bead. An additional structure, believed to be from the same Russian expedition, was also found. This information will help tell the story of the brief human habitation that has occurred on St Matthew over the last several hundred years. Interestingly, one of the historic sites was found immediately adjacent to where the team had set up its own camp site during this trip. Apparently, a good camp site centuries ago is still a good camp site today.