

National Cooperative Soil Survey and U.S. Fish and Wildlife Service Research Vessel Tiglax: Unveiling the Aleutian Islands' Environmental Secrets in 2023

Submitted by: Timothy Riebe, Soil Scientist



Multi-agency field crew on Kanaga Island pictured from left to right: Alaska Department of Fish and Game (Mark Witteveen), Natural Resources Conservation Service (Timothy Riebe), U.S. Fish and Wildlife Service (Adrienne McGill), Graduate Research Assistant UAF (Caitlyn Oliver Brown). Photo courtesy of USFWS (Amy Tippery)

Introduction

In June of 2023, the National Cooperative Soil Survey (NCSS) and the U.S. Fish and Wildlife Service (USFWS) embarked on an ambitious week-long scientific expedition to the Aleutian Islands. One team taking advantage of sites to be visited on Tanaga, Kanaga, Sequam, and Amlia Islands by USDA's Animal and Plant Health Inspection Service (APHIS) and another by road on Adak Island, this collaborative effort aimed to unravel the mysteries of this remote and ecologically significant region. The NCSS conducted a reconnaissance soil survey, while the USFWS collected related plant community information for use with the National Wetland

Inventory (NWI) and ecological site correlation. This joint endeavor promises to provide invaluable insights into the islands' environmental health and conservation efforts.

The National Cooperative Soil Survey

The National Cooperative Soil Survey is a partnership between the United States Department of Agriculture's Natural Resources Conservation Service (NRCS) and other federal, state, and local agencies. Its primary objective is to map and classify soils across the United States, providing essential information for land management, agriculture, and environmental planning.

The Aleutian Islands, a chain of volcanic islands stretching over 1,200 miles in the Bering Sea, have long been shrouded in mystery due to their remote location and harsh climate. The NCSS recognizes the importance of understanding the islands' soil composition, as it directly influences the region's vegetation, wildlife habitat, and overall ecosystem health.



Tiglax crew members load a zodiac raft used for shore landings. Photo courtesy of USFWS (Amy Tippery)

The Soil Survey of the Aleutian Islands

The reconnaissance soil survey of the Aleutian Islands involved a team of soil scientists, ecologists, and biologists working in collaboration with local communities and indigenous groups. The researchers collected soil samples from various locations across the five islands, for analysis of their physical and chemical properties. This data will be used to create coarse soil

maps, which will aid in general land-use planning. Later efforts may include more detailed studies resulting in soil maps to be used for conservation efforts, and sustainable development.

Understanding the soil composition of the Aleutian Islands is crucial for several reasons. It will help land management practices, and provide insights into the islands' vulnerability to erosion, contamination, and other environmental threats. Additionally, the soil survey will contribute to the preservation of the unique flora and fauna that call the Aleutian Islands home.

The National Wetland Inventory (NWI)

The NWI is a comprehensive program initiated by the USFWS to map and classify wetlands throughout the United States. It provides essential information for land management, conservation planning, and decision-making processes. The NWI aims to identify wetland types, assess their ecological functions, and monitor changes in wetland extent and condition over time.



NRCS Soil Scientist Timothy Riebe evaluates landforms on Amlia Island prior to sampling. Photo courtesy of Amy Tippery USFWS.

Mapping Wetland Extent and Types

Using aerial and satellite imagery, the Tiglax team meticulously mapped the extent and distribution of wetlands in the Aleutian Islands. This involved identifying wetland boundaries, classifying wetland types, and documenting their characteristics. The data collected during this inventory will contribute to a comprehensive understanding of the region's wetland resources.

Assessing Wetland Functions and Values

In addition to mapping wetland extent, the Tiglax expedition focused on assessing the ecological functions and values of the Aleutian Islands' wetlands. Wetlands provide critical habitat for migratory birds, fish, and other wildlife, and play a crucial role in carbon sequestration and water purification. By evaluating these functions, the NWI helps prioritize wetland conservation efforts and informs land management decisions.

Monitoring Wetland Changes

The Tiglax's expedition also aimed to monitor changes in wetland extent and condition over time. By comparing current data with historical records, scientists can identify trends and assess the impacts of natural and human-induced factors on wetland ecosystems. This information is invaluable for adaptive management strategies and conservation planning.

U.S. Fish and Wildlife Service Research Vessel Tiglax

The US Fish and Wildlife Service deployed its research vessel, Tiglax, to explore the more remote ecosystems of the Aleutian Islands. The Tiglax was used to reach remote offshore locations that provided safe anchorage for the vessel and crew. Access to the remote islands was performed via beach landings from one of two zodiac rafts, expertly piloted by Tiglax crew members.

The vessel was used to conduct surveys of fish populations, marine mammals, seabirds, and other wildlife species. This limited research may lead to more comprehensive studies in the future. More comprehensive research will provide a holistic understanding of the Aleutian Islands' marine environment, aiding in the development of effective conservation strategies and sustainable fisheries management.

Conclusion

The collaborative efforts of the National Cooperative Soil Survey and the U.S. Fish and Wildlife Service's research vessel Tiglax in June of 2023 will shed light on the environmental secrets of the Aleutian Islands. The soil and ecological site observations (although very limited) will provide crucial insights into the islands' soil composition, aiding in general land-use planning. Through further collaboration more detailed soil survey products can be created to assist with conservation efforts and sustainable land use decisions.

This joint endeavor represents a significant step towards understanding and protecting the fragile ecosystems of the Aleutian Islands. The knowledge gained from this research will provide general inventory information and will open the door to future collaboration for more detailed studies to inform future conservation efforts, ensuring the sustainable management of these remote and ecologically significant islands for generations to come.