

The College of the Atlantic
Alice Eno Field Station
Mission Statement and Student Research



Mission

We believe that some of the best learning comes through doing. The purpose of the College of the Atlantic's Alice Eno Field Station is to provide College of the Atlantic students with direct, hands on experience in conducting research in field ecology. Besides participating in long-term studies of island biology and human ecology, students have the opportunity to create their own research program and take it from initial inception through data collection, analysis, write-up, and presentation at professional meetings.

Introduction

College of the Atlantic (COA)'s Alice Eno Field Station was founded in 1999 after the original Great Duck Light Station was deeded to COA under the Maine Lights Program. Under the terms of the deed, the College assumed ownership over 12 acres of Great Duck Island, consisting of two parcels –approximately 4 acres around the eastern boathouse and 8 acres at the extreme southern tip of the island. In addition, the deed grants COA the right of access to all traditional landing sites on the island. Subsequent cooperative agreements with the Nature Conservancy and the State of Maine grant COA faculty and students permission to conduct education and research on the bulk of the island.

The station was named after long-time COA Trustee and benefactor, Alice Eno (1923-2007) who had been an enthusiastic supporter of the College's field work in the Gulf of Maine for over 20 years. Alice visited the station frequently every summer and delighted introducing other trustees and friends of the College to seabirds and the students who studied them.



Alice Eno The station's patron and namesake

Great Duck Island

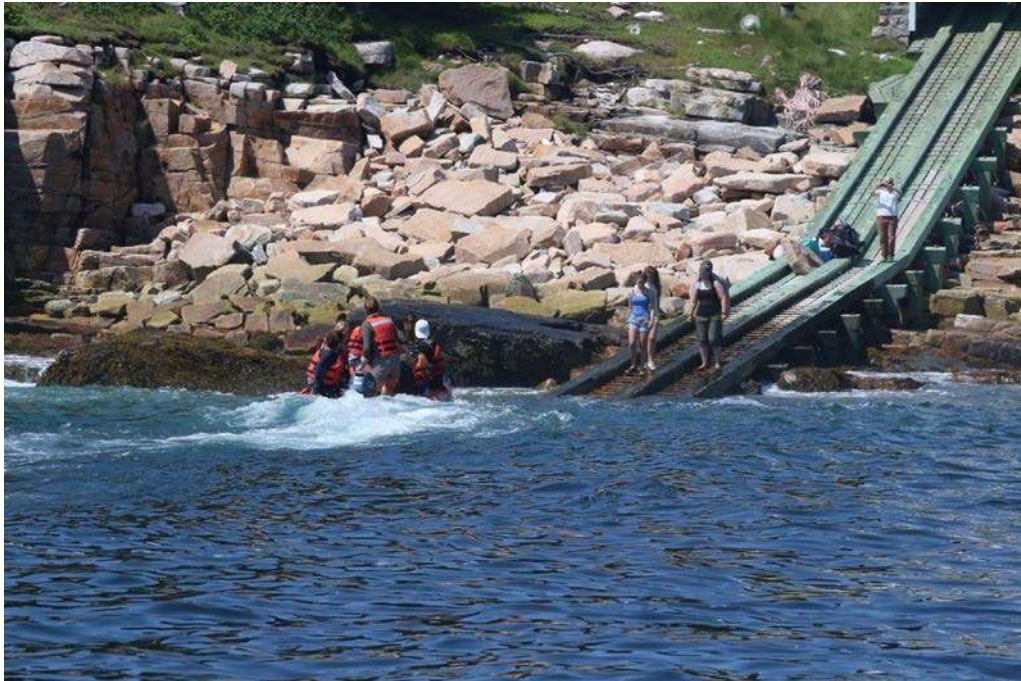
Great Duck Island is a 220-acre island located approximately 5 miles south east of Mt. Desert Island or 17 miles south of College of the Atlantic. The island is oriented north to south, with a long axis just over a mile in length, and a narrow “waist” approximately 250 yards wide at the narrowest point. Approximately 80 acres of upland on the island is covered with spruce forest, though this habitat is shrinking as trees die, blow down and are not replaced. The on-going loss of forest is of concern to the College and other land-holders, both because its disappearance will have a profound effect on the appearance of the island, and also because research by COA students has shown that the forest edges are of particular importance to nesting leach’s storm petrels.

Starting with our first season on the island in 1999 successive generations of COA students have helped develop and expand a GIS of the island. Present layers range from bedrock geology through vegetation and bird distribution, to human structures and artifacts. This on-going project is an important way to organize and visualize our data and to track changes in the island over time. Through use of the GIS we have been able to show dramatic movements in nesting gull populations, changes in the forest cover, and, at the present rate of sea-level rise, the eventual division of the island as the Gulf of Maine inevitably re-claims the old surge channel between the northern and southern ends of the island. Training in GIS and GPS technology is also an important set of skills that students working on the island can come away with at season’s end. Many Great Duck alums go on to use these techniques in their own research on study sites scattered across the continent.



GIS-based map of Great Duck showing the rocky berm surrounding the island, the vegetated space within this zone, the island’s forest and human-made structures, including Field Station buildings on the southern point and the old airstrip at the north end.

Great Duck is notoriously difficult to land on. There is no pier, and the only landing places are the boat-ramp (rebuilt by COA in 1999-2000), a small cove at the extreme north end of the island, and a rocky beach on the western shore.



Landing on the ramp in calm conditions

All landings from larger boats such as the College's R/V *Osprey* must be done using Zodiac-type inflatables or "peapod" dories. Because of the difficulty of landings, the island is frequently cut off from the mainland, with weekly supply runs built around wind and wave. A diesel winch at the boat-ramp assists in the movement of dories and heavy supplies to the island boat-house, and an ATV is used to ferry water and equipment the half mile to the main station.

The Alice Eno Station

The heart of Eno Station is the island lighthouse. This 42-foot-tall tower is an ideal platform for making observations of nesting and loafing birds at the south end of the island. Every day, weather permitting, the research team climbs the tower at 7 am and records all species of birds seen on, over or next to the island. The consistent counts allow us to track trends in populations of birds in the area as well as to examine chick survival in gulls and eider ducks without needing to handle or otherwise disturb the birds.



The island tower and an observer scanning for birds

The tower also serves as a site for GPS tracking of adult gulls tagged on their nests in the colony below.

The Keeper's House is the primary residence for researchers and students on the island. The house was built in 1890 and has 3 bedrooms capable of housing up to 7 people comfortably.



The keeper's house, showing photovoltaic panels (upper right)

There are three primary "living rooms" downstairs, including a kitchen, radio-room/computer work-room, and a reading room. The house is heated with a vented propane heater. All rooms have 110 v. electric outlets and lighting. Power comes from 2 solar arrays located on the northern edge of the property. A battery bank ensures 24-hour electrical coverage, and the system has worked well even in mid-winter. The kitchen is equipped with a propane stove,

refrigerator, freezer, toaster, and working sink for dishes. All drinking water must be brought to the island in 6-gallon jugs. There is an outdoor shower for personal cleaning. Water is heated by a small “on-demand” heater with limited capacity. Sanitation is provided by a hand-dug outhouse located approximately thirty yards to the east of the house. The outhouse pit generally needs to be re-dug every 2-3 years assuming moderate use.

There are 4 additional beds in the remodeled Western Boat House, which is located approximately 100 yards to the southwest of the Keeper’s House. This structure is unheated and lacks electricity, but it provides some of the best sunset views in Maine.

Communications to and from the station are by marine radio and limited cell-phone and internet service. Internet is very weather-dependent. When it is operational we have wireless connectivity throughout the lower floor of the house. Residents are encouraged to employ the U.S. Postal Service whenever possible, and mail is sent out and brought in on most boat runs.

The old Generator Shed at the extreme southern end of the island serves as a storage facility, as does the large Eastern Boat House, half a mile to the north of the station. The Eastern Boat House has its own limited solar array that provides sufficient power for limited lighting. The Generator Shed is unlighted.

Research on Great Duck

The ultimate goal of our work on Great Duck is to provide a truly Human Ecological examination of the island’s past, present, and future. To that end students have engaged in studies of the island’s flora, fauna, geology, and history. The primary emphasis of much of our work has been on the island’s breeding bird population, particularly the gulls, guillemots, and storm petrels that have nested on Great Duck since at least the latter portion of the 19th century.



We record nest locations, breeding success, and the impact of predation on chicks and adults. Recently we have begun tracking adult birds during both the breeding and non-breeding seasons using GPS technology in order to determine critical foraging and loafing habitats.

Besides work on birds we are interested in the changes in the island’s forest, particularly as it relates to populations of introduced snowshoe hare. Students have radio-tagged hare and

worked with the Nature Conservancy to establish hare-proof exclosures to see how hare grazing might affect forest regeneration.



Students trapping snowshoe hare

A number of students have been inspired to include aspects of the visual arts or literature in their work on the island. In some cases this has been the primary element of their senior project or thesis, in other cases it complements scientific investigations.



Kate Shlepr presenting Great Duck research in Wilhelmshaven, Germany

Senior Projects and Master's Theses conducted completely or in part at Eno Station

(a) Indicates a project with a major visual component, **(h)** indicates a major influence of the humanities

Senior projects

Berezuk, R. 2014. Landscapes of Great Duck Island and Little Duck Island. Paintings submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME. **(a)**

Boucher, A. 2006. The Effects of Disturbance on Herring Gulls (*Larus argentatus*) and Great Black-backed Gulls (*Larus marinus*). Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME.

Chalfant, J. 2012. Constructing a natural history diorama. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME. (a)

Dickinson, M. 2010. Sparrows on Great Duck Island, Maine. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME.

Drummond, S. 2005. Parallel Worlds: Four Seabirds of Great Duck Island, ME. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME (a)

Hart, A. 2016. Ruminations of a Human Animal. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME (h)

Hurley, A. 2015. Coming in by going out: notes for Olive. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME (h)

Kebler, S. 2008. Forever Gone. Paintings submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME (a)

Lyman, W. 2015. Snowshoe hare herbivory and other factors limiting spruce regeneration on Great Duck Island, Maine, U.S.A. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME

Lyon, M. 2016. The Natural History and Breeding Biology of the Black Guillemot: A Population at the Southern End of its Range. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME

McCanna, J. 2004. Vascular Plant Inventory of Great Duck Island, Hancock, Co. ME. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME

Mitra, C. 2001. Effects of spatial and temporal factors on nesting and pre-fledging success of the herring gull *Larus argentatus smithsonianus*. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME

Myers, A. M. 2000. Black Guillemot *Cephus grylle* productivity and habitat preference on two islands in the Gulf of Maine. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME

Neilson, L. 2012. Observing Nature Through Art and Science. Thesis submitted in partial completion for a BA in Human Ecology. College of the Atlantic Thorndike Library, Bar Harbor ME (a)

Perry, A.C. 2010. The natural history and nesting ecology of Leach's Storm-Petrel (*Oceanodroma leucorhoa*). Thesis submitted in partial fulfillment of the requirements for a Bachelor's Degree in Human Ecology. Bar Harbor, ME (a)

Pillsbury, F. 2002. Color Pattern Differentiation in the Common Garter Snake *Thamnophis sirtalis* among Four Islands in the Gulf of Maine. Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Shepard, M. 2003. Situation Specific Call Use in Leach's Storm Petrel (*Oceanodroma leucorhoa*). Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Smith, G. 2010. A Survey of Ectoparasites on Great Duck Island: A Look at Bird-Parasite Interaction. Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Spruce, S. 2007. Portrait of a Sea Duck: Common Eiders in the Gulf of Maine. Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Sullivan-Lord, R. 2014. Presence and trophic transfer of methylmercury around two offshore islands, northern Gulf of Maine. Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Walczyk, S. 2006. Effects of breeding ecology and behavior on competition and reproductive success in Great black backed gulls and Herring Gulls on Great Duck. Thesis submitted in partial completion of a BA degree in Human Ecology, College of the Atlantic. Thorndike Library, Bar Harbor, ME

Master's Theses

Ambagis, J. 2002. Census and monitoring techniques for Leach's Storm Petrel (*Oceanodroma leucorhoa*). Thesis submitted in partial fulfillment of the requirements for an MPhil degree, College of the Atlantic, Bar Harbor, ME

Boucher S. 2006. Thirteen Ways of Looking at a Guillemot: A Thesis Submitted in Partial Fulfillment of a Masters of Philosophy in Human Ecology Thorndike Library College of the Atlantic Bar Harbor, ME (h)

Campbell, C. 2004. Variations in common garter snake (*Thamnophis sirtalis*) populations on human altered islands in Maine.

Shlepr, K. 2017. The Geography of Diet: Diversity in Diet and Foraging Behavior in Herring gulls (*Larus argentatus*) Across Atlantic Canada. Thesis submitted in partial completion of the MSc degree. Univ. of New Brunswick, Fredericton, NB