

College of the Atlantic (COA) Partnership Application
North Atlantic Coast Cooperative Ecosystem Studies Unit
(NAC-CESU)

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COA Partnership Application to NAC-CESU

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(2) Programs relevant to federal land management, environmental and research agencies

College of the Atlantic is a fully accredited institution offering the B.A. and MPhil. in Human Ecology. The College is located on Mount Desert Island with portions of our facilities surrounded by Acadia National Park (ANP). Within the broad framework of the degree programs students develop expertise in areas that include Field Ecology, Marine Biology, Public Policy, Law, Literature and Media/Arts. The college also offers teacher certification in Elementary Education, Secondary Science, Secondary Social Studies, and Secondary English Language Arts. All students at the college are required to do at least one ten-week internship and to submit a senior thesis which requires at least one term for completion. Many students do their internships with state and federal agencies, and a substantial proportion of senior theses involve issues and original research in resource management, conservation, and public education/outreach. Faculty research programs focus largely on issues within the Gulf of Maine, and a number of faculty place a high emphasis on "citizen science" –involving community members in data collection, interpretation and application. Approximately 20% of the college's student body are international students, while the majority come from a broad range of U.S. States.

(3) A list and brief description of faculty with expertise in disciplines and interdisciplinary work relevant to federal land management, environmental and research agencies.

What follows is a selection of faculty who expressed immediate interest in collaborative research with the National Park Service. College of the Atlantic is non-departmental in structure, but we do organize faculty into three loosely defined areas, Arts and Design, Human Studies, and Environmental Sciences.

John Anderson (Environmental Sciences). Seabird ecology, Island biology and conservation, habitat monitoring and GIS applications in field ecology. jga@coa.edu

Don Cass (Environmental Sciences). Environmental Chemistry. Air and Water quality. Global change. Risk assessment. dac@coa.edu

Ken Cline (Human Studies). Environmental Law and policy. Public lands. Conservation Law in marine and terrestrial settings. ksc@coa.edu

Dru Colbert (Arts and Design). Museum design. Exhibit planning and execution. Multimedia in public education and displays. dcolbert@coa.edu

David Feldman (Environmental Sciences) Mathematical modeling. Complex systems, theoretical and computation physics, Programming. dfeldman@coa.edu

Helen Hess (Environmental Sciences). Invertebrate biology and reproductive biology of fish. Invasive species in the intertidal. Monitoring protocols for intertidal and sub-tidal areas. hhess@coa.edu

Ken Hill (Human Studies). Public education, educational psychology, educational program development and assessment. khill@coa.edu

Gordon Longworth (Arts and Design). GIS systems management and implementation. Use of GIS in community planning and environmental management. glongworth@coa.edu

Isabel Mancinelli (Arts and Design). Park planning and management, environmental design and landscape architecture. Isabel@coa.edu

Chris Petersen (Environmental Sciences). Marine ecology. Reproductive ecology of marine and freshwater fish. Anadromous fish species. Intertidal monitoring and tidal estuarine ecology. chrisp@coa.edu

Nishanta Rajakaruna (Environmental Sciences). Ecology of plants in extreme environments. Restoration ecology. Management of rare plants and their habitats, assessment of biotic and abiotic stressors to natural vegetation. nrajakaruna@coa.edu

Stephen Ressel (Environmental Sciences). Herpetology. Censusing and monitoring of amphibian habitats and populations. Museum collections management and curation. sjr@coa.edu

Scott Swann (Environmental Sciences). Ornithology. Avian population censusing and management. swann@coa.edu

Sean Todd (Environmental Sciences). Marine Mammalogy. Censusing, conservation, and management of seals and great whales. Oceanography. stodd@coa.edu

(4) Relevant Facilities and Equipment

Fully equipped GIS lab with multiple workstations running ARC GIS, large format plotters, digitizing facilities. GPS base station plus hand-held and backpack units.

Herbarium. The College houses the official Acadia National Park herbarium as well as a broad range of specimens collected on inner and outer islands in the Mt Desert region.

Dorr Museum of Natural History. Interpretive displays of regional natural history as well as an extensive collection of vertebrate mounts and specimens, insects, and a broad range of marine invertebrates.

One 42 foot U.S. Coast Guard certified research vessel with limited marine sampling equipment. Vessel is capable of transporting up to 15 researchers anywhere (tide and weather permitting) within the marine portion of the Park Fee Boundary. The vessel is crewed by a certified captain and is available from March through November each year.

One 22 foot open deck inboard/outboard research craft suitable for inshore work on bays.

Numerous small craft (dinghies, kayaks, canoes, inflatables).

Chemistry Lab, Botany Lab, Zoology Lab. Each lab is equipped with dissecting and compound microscopes, digital projection facilities, and basic sampling equipment.

Two off-shore island-based field stations equipped with field equipment (binoculars, scopes tapes, quadrat samplers, etc.).

(5) A brief description of relevant experience in research, technical assistance and education linked to CESU Network mission objectives.

The North Atlantic Coast CESU is part of a national network established to generate collaborations among federal managers and policy-makers, federal researchers and the academic community; and through these collaborations provide research, technical assistance and education to federal land management, environmental and research agencies. Specific NAC-CESU Network mission objectives include:

Research Mission

- Identify and describe critical research needs for federally managed lands.
- Establish research priorities based on the needs of federal resource managers.
- Conduct research within the North Atlantic Coast biogeographic region.
- Apply research results to support the preservation, management and restoration of North Atlantic Coast ecosystems and cultural resources.
- Monitor the success of resource preservation, management and restoration efforts.

Technical Assistance Mission

- Identify and describe the critical technical assistance needs of federal land managers.
- Provide technical assistance, training, planning support, and other needed services for federal resource managers in a way that is timely and relevant to their critical needs.

Cooperative Education Mission

- Establish cooperative education/internship positions for undergraduate and graduate-level students.
- Encourage the professional development of federal scientists and managers involved in the CESU.
- Provide opportunities for technical training of federal scientists and managers.

Partnership/Collaboration

- Encourage participation by other federal research and management agencies and universities involved in coastal programs.
- Develop collaborative approaches for establishing research & management priorities
- Facilitate collaboration to enhance the generation, synthesis, and use of scientific information for the resolution of critical coastal issues

College of the Atlantic's interest in joining the CESU derives from an intersection of shared, complementary or synergistic mission objectives, which will benefit both the College and partner CESU institutions and agencies. COA's emphasis on Human Ecology –loosely defined as the critical examination and interpretation of humans' inter-relationships with their environment- is entirely in keeping with the goals of the CESU. The college's location on Mount Desert Island provides immediate access to and from ANP facilities. This has led to a high level of interaction among particular faculty and students and NPS staff. The College already houses and curates the ANP's herbarium collections, and has actively collaborated with NPS staff in the development of a detailed regional GIS. Individual faculty members have engaged in projects directly relating to the Park's General Management plan, and student theses have addressed specific park needs. Examples of student theses directly relating to ANP needs include: censuses of small mammals on Isle au Haut; censuses of sea ducks around ANP islands; educational brochures on invasive plant species; breeding bird surveys; water quality at swim beaches on MDI etc.

While these activities have been mutually beneficial, they have often occurred in a somewhat *ad hoc* manner without the benefit of an organizing framework. We see membership in the CESU as providing just such an overarching administrative structure that will facilitate and enhance future collaboration. A fundamental element of COA's teaching philosophy is that students learn best when they are engaged in "real-world" settings in which the results of their work have tangible and useful outcomes that will benefit others. A significant number of courses require students to engage in practica that bring them into direct contact with professional managers and community members from a broad spectrum of society. The faculty listed above all have on-going research programs, elements of which tie directly into land-use management, conservation of species and habitats within the Gulf of Maine, public policy in the development and implementation of conservation strategies, and public outreach, education, and interpretation. College facilities are available for research and training of park staff and seasonal aides, and the College has traditionally supplied the NPS with a range of seasonal and in some cases permanent employees. Membership in the CESU would enhance the College's ability to target research goals and improve the training of students to better meet NPS needs. In addition, the CESU opens up possibilities of broader collaboration with other member agencies and institutions. Due to our small size we do not anticipate expanding CESU-related activities beyond those related to our regional focus. However, we will benefit considerably from interaction with Cooperative-wide members, and will, in turn, provide on-site facilities and local expertise to partners engaged in work in Acadia.

(6) A list and brief description of current formal and informal relationships with federal land management, environmental, and research agencies.

Dr. Nishanta Rajakaruna is currently engaged in projects involving the inventory and protection of rare plant habitats within the park and the surrounding region. This follows up on previous long-term studies by the late Dr. Craig Greene, who, with his students, re-surveyed the park in order to assemble voucher-specimens and to assess changes in plant distribution since the original Rand & Redfield survey of Mt. Desert Island in the late 19th and early 20th centuries.

Dr. Christopher Petersen is engaged in the study of anadromous and freshwater fish in island watersheds and the assessment of estuarine and intertidal ecology, particularly in relation to conservation and the potential threat of introduced species. Some of Dr. Petersen's funding has come from the National Science Foundation. Dr. Petersen's work in Northeast Creek is directly relevant to park involvement in the protection of sensitive habitats. Dr. Petersen also serves as the College's coordinator for the NIH-funded INBRE biomedical research initiative.

Dr. Stephen Ressel is developing protocols for the assessment of amphibian diversity and abundance within the park. As Director of the Dorr Museum of Natural History, Dr. Ressel also oversees, jointly with Dru Colbert, the development of interpretive displays relating to island natural history and park interpretation.

Dr. John Anderson works on seabird populations on islands in the vicinity of Acadia. Some of this work is supported by SEAGRANT funds. He has submitted a grant proposal to the NPS to support the development and testing of nesting seabird census protocols on park islands. Dr. Anderson is also coordinating development of a COA/SERC environmental studies program for High School students.

Isabel Mancinelli was instrumental in developing Acadia's General Management Plan and has also developed management documents for Campobello Island and other NPS units. She is actively involved in Park and surrounding community growth management planning.

Dr. Donald Cass has collaborated with ANP in baseline studies of water quality and atmospheric deposition.

Dr. Helen Hess is currently working with Dr. Jeremy Long from UNE to generate a collaboration on developing a rocky intertidal monitoring protocol for Acadia and Boston Harbor Islands. She is also developing protocols for monitoring invasive species in the intertidal with Dr. Chris Petersen. This work is supported by the Maine Space Grant Consortium.

Gordon Longworth actively collaborates with the NPS and other state and federal agencies in developing, curating, and applying GIS data sources for federal, state, and private lands within the Gulf of Maine region.

Dr. Sean Todd coordinates marine mammal strandings for NOAA/NMFS. Dr. Todd directs Allied Whale, the College's marine mammal unit, which is responsible for the federally funded North Atlantic Humpback and Finback whale catalogs.

(7) A description of services to be provided to the participating federal agencies and federal employee(s) by the university.

Membership in the CESU is intended to facilitate and enhance the current working relationship between COA and ANP and to broaden the base of collaboration in projects involving census and monitoring of natural resources, public education and outreach and interpretation of park elements. In addition, COA anticipates the development of specific programs that will allow students to interact with park professionals as part of a range of classes in field ecology, public policy/environmental law, and environmental education. These programs would encourage a better match between prospective interns or future employees from COA within the NPS system and will ensure the College's ability to provide timely and effective participation in park research, management, and interpretive efforts. Park personnel would gain access to COA facilities and COA faculty will be available to serve in a consultative role as well as to perform specific grant-based tasks.

(8) A description of the actual, assessed overhead rate (not to exceed 17.5%) to be charged and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance and educational services.

COA currently is in the process of negotiating federal Facilities and Administrative rates for collaborative work with NOAA/NMFS that are applied to a total direct costs base. The proposed figure for NOAA/NMFS is 22%. This rate is applicable to all salaries and wages, fringe benefits, materials, supplies, services, travel as well as subgrants and subcontracts over the first \$5000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Based on the F&A rate limitation in the CESU Cooperative and Joint Venture Agreement, COA will utilize an F&A rate not to exceed 17.5%.

(9) A description of administrative support, including the ability (and administrative charges, if any) to transfer, subcontract and receive funds between CESU partners and through the national CESU Network.

Administrative support relating to grants and contracts is overseen by Administrative Dean Andy Griffiths agriffiths@coa.edu. Actual administration is shared between the Development Office ljohnson@coa.edu which monitors budgets and ensures that appropriate billing material and reports are submitted in a timely fashion and the college's Business Office mcook@coa.edu which actually issues checks and provides day to day budget information. Charges for administering grants are subsumed into the general overhead applied to a particular grant or are regarded as a portion of the College's "in kind" contribution in the event that a grant is too small to generate

overhead.

(10) Staff, faculty time, educational services and other commitments the university wishes to offer the CESU, including the amount, kind, dollar value and duration of assistantships, work-study funds, clerical support, and so forth.

This will vary depending on the nature and duration of particular projects entered into under the CESU. In many cases, faculty and student time will be covered by class activities, in other cases students will serve as interns working with Park personnel and/or supervised by faculty advisors. Student interns are required to spend a minimum of 400 hours in supervised employment (includes volunteer positions) in order to meet their degree requirements. Some deliverables – particularly GIS datasets and map products - would be produced as part of specific sub-contracts from Acadia, with costs where possible being reduced through the use of course projects and/or work-study arrangements. In other cases preparation and presentation of deliverables will be included as part of a specific project proposal.