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This aerial photograph shows the extent of the Ira C. Darling property that was transferred to the University of Maine for the establishment of a marine laboratory. Its location, on the Damariscotta River in South Bristol, Maine was an ideal location for faculty to conduct marine science experiments.

MARINE SCIENCES AT THE UNIVERSITY OF MAINE, 1960-2015

BY CATHERINE SCHMITT AND SHELBY HARTIN

*The development of marine science research, teaching, and service at the University of Maine formally began in 1965, when Ira Darling and Clare Shane Darling transferred their 127-acre farm and woodlot on the Damariscotta River in South Bristol to the University. Their express purpose was to establish a marine laboratory. The gift fulfilled the decades-old desire by University of Maine scientists and administrators to do just that. UMaine quickly began hiring faculty, starting research projects, building structures, developing courses, and creating ties to state and federal agencies. The transition from farm to world-class facility and laboratory was gradual, with periodic uncertainties over funding and direction. But, eventually, UMaine became one of the first twenty institutions in the United States to achieve "Sea Grant" status while University of Maine Marine Sciences overall became one of the University's most important units, supporting research in the Gulf of Maine and the oceans beyond. Catherine Schmitt is Communications Director at the Maine Sea Grant College Program. She is the author of *A Coastal Companion: A Year in the Gulf of Maine from Cape Cod to Canada* (2008) and *The President's Salmon: Restoring the King of Fish and its Home Waters* (2015). Her forthcoming book project (2016) is titled *Historic Acadia National Park*. Shelby Hartin is a 2015 graduate of the University of Maine with a bachelor's degree in English and Journalism. She currently resides in Bangor and is employed by the Bangor Daily News as a customer service representative and features reporter where she writes for the arts and culture, food, and homestead sections of the paper.*

THE DEVELOPMENT of marine science research, teaching, and service at the University of Maine paralleled the ascendance of oceanography that began during the 1960s. Across the United States, public and private institutions funded more ocean research projects, developed new instrumentation, launched new research vessels, established educational programs, and published journals, as well other activities. With such an extensive coastline, Maine was a well-suited location to perform oceanography and naturally followed these national

trends, pursuing marine science and education. While the University's limited marine facilities at Lamoine had been turned back over to the state for use as a park after World War II, the need and desire for a marine research center persisted. President Lloyd Elliott, at the urging of the zoology department chair, Kenneth Allen, and development officer Peter Crolius, appointed a committee to assess the development of a marine science program. Opportunity came in 1965. Ira C. Darling, a retired insurance executive, and Clare Shane Darling transferred their 127-acre farm and woodlands on the Damariscotta River in South Bristol to the University of Maine, for the expressed purpose of establishing a marine laboratory. University of Maine researchers wasted no time, planning a modest summer research project to survey the fauna of the Damariscotta River. Other staff members used the facilities to set up experiments, and faculty transferred several ongoing geology and zoology projects from Orono to the new facility. Founders also hoped that the site would be used as a base for the marine fisheries program then being conducted in cooperation with state and federal agencies.

The following year, Dr. David Dean became the first director of the Ira C. Darling Center for Research, Teaching, and Service, at the time the northernmost marine base on the United States' Atlantic Coast. Dean earned his PhD in zoology from Rutgers University. He left the University of Connecticut, where he recently commenced his career, to come to Maine. While Dean spent much of his first months on campus in Orono developing policies and construction plans, he was anxious to move to South Bristol because he had "fallen in love with the Center," he wrote in a letter to Ira Darling.¹

The transition from farm to world-class laboratory occurred gradually. Researchers housed specimens in the root cellar, located the library in a canning closet, and borrowed the flowing seawater of neighbor Ed Myers' lobster pound. A nearby summer resident, William P. Drake of Philadelphia, donated his forty-three-foot schooner *Half Moon* to the center. The vessel was a beautiful boat, but it turned out to be ill-suited for ocean research.

As Dean worked to get the lab up and running, he continued to pursue other lines of research. He and John Dearborn, a Bangor native who joined the Marine Science faculty in 1966, received an award of \$27,800 in 1968 for studies to be conducted in the Labrador Sea-Greenland area. Their research served as a "shakedown cruise" for the research vessel *Hero*, a million-dollar, 125-foot, diesel-powered sloop with sails, built from twenty-two-inch thick white oak for the National Science Founda-

tion (NSF) by Harvey Gamage of South Bristol, Maine. The *Hero* then sailed to its year-round base of operations in Antarctica.² Dearborn and fellow University of Maine faculty members Hugh DeWitt and Jack Littlepage were among the initial researchers to visit the Antarctic. Dearborn was the first to dive in the frigid waters at McMurdo Station, studying inhabitants of the cold sea floor, some of which were later named for him, as was Mount Dearborn in South Victoria Land, Antarctica.

Zoology professor Dr. Bruce D. Sidell, who began his career at the University of Maine in 1977, studied the impact of low temperature on the biochemistry of fish in a career of uninterrupted funding from the National Science Foundation. He came to specialize in Antarctic “ice-fish” that live close to the freezing point of seawater and die at temperatures only a few degrees above zero.³

In 1967, Maine voters approved \$150,000 for construction of laboratory facilities at the Darling Marine Center, and the legislature awarded additional funds for oceanography programs. The center immediately became a popular site for conferences, meetings, and education, with a public marine biology seminar series and statewide “illustrated talks” by faculty. As the decade ended, the Darling Center was again running out of space.

The 1970s

Ed Myers, who in 1973 had founded the Damariscotta River Association and established the first blue mussel farm in North America, joined the Darling Center administrative staff in 1974. The university began offering a graduate program in oceanography, an interdisciplinary course of study that leveraged strong existing programs in zoology, chemistry, and physics. First proposed in 1967, the program was considered an appropriate addition to a rapidly expanding graduate school, active marine research activity by faculty, interest from the public and potential students, and Maine’s large marine resource economy. “The ever increasing need for oceanographers and the intense industrial and federal interest in oceanographic training and research programs make it imperative that the University of Maine consider the addition of an oceanography curriculum without delay,” wrote the committee.⁴

The Darling Center received a significant boost with an award of \$418,000 from the energy company Maine Yankee for comprehensive studies of the Wiscasset nuclear power plant’s impact on marine habitat



Ed Myers established the first blue mussel farm in North America. He joined the Darling Center staff in 1974. This image from 1974 depicts a mussel and oyster aquaculture experiment.

in Montsweag Bay. Funding continued through the 1970s (a total of more than two million dollars) supporting ten students and staff. Another boost came with the establishment of the National Sea Grant College Program, created by the 1966 Pell-Rogers Sea Grant Colleges and Program Act. Modeled after the land-grant concept, the National Sea Grant College Program—or “Sea Grant Program,” for short—was designed to support education and research in applied marine sciences. The program transferred in 1970 from the NSF to the new National Oceanic and Atmospheric Administration (NOAA).

The Darling Center received Maine’s first “sea grant” in 1971, \$100,300 for “projects related to the culture of resources in the cold water marine environment.”⁵

Sea-grant funds were distributed to faculty in the departments of agricultural engineering, resource economics, animal and veterinary science, food science, and mechanical engineering, with a charge to adapt known techniques and develop new methods for raising marine organisms in Maine’s unique coastal environment, and to create market de-

mands for “under-utilized” marine resources of the region. Species of focus included the blue mussel, rock and Jonah crabs, sea scallop, American oyster, and bay scallop.

Dean, recognizing the need for “an outstanding young shellfish biologist,” recruited Herb Hidu to the University of Maine’s faculty. Hidu immediately began a program in shellfish biology, using the Myers facility to produce several broods of oyster larvae and juveniles before the first sea-grant dollars had even arrived.⁶ The operation moved to the Darling Marine Center after construction of a flowing seawater system in the new lab in 1972, and Hidu taught the first aquaculture course offered at UMaine. His graduate students went on to become some of the first commercial shellfish growers in the state. By the mid-1970s, the Darling Marine Center hatchery provided millions of juvenile oyster “seed” to farmers in the Damariscotta River region, who in 1976 organized to form the Maine Aquaculture Association.

The 1970s also saw the beginnings of the University of Maine’s collaboration with marine industries and coastal communities, extending the land-grant concept to the coast. When NOAA was formed in 1970, plans were made to include advisory services and information transfer functions in the new organization. Modeled after the agricultural Cooperative Extension service, the Marine Advisory Service acted in a liaison capacity, translating the needs of resource managers, marine industries, and coastal constituents into research projects, and connecting these constituents with available university resources. Paul Ring, Maine’s first marine extension specialist based at the Darling Center, focused on recreation and coastal zone planning, as fisheries-related extension work was supported at the time by sea-grant funds to the State of Maine Department of Sea and Shore Fisheries. Aquaculture technician, Mark Richmond soon joined Ring. Extension was part of a network of “cooperators” in other marine-related organizations and institutions in Maine, including Cooperative Extension, College of the Atlantic, the Department of Marine Resources, Maine Maritime Academy, Marine Trades Center in Eastport, and the Southern Maine Vocational Technical Institute in Portland.

In 1972, Ring began a project to help Pemaquid-Beach-area volunteers restore sand dunes, while Kenneth Fink, an oceanographer based at the Darling Center, studied sand movements at the beach with Barry Timson of the Maine Geological Survey. The sand beaches of southern Maine covered less than four percent of the state’s coastline yet had significant ecological, economic, and social values. State, municipal, com-

munity, private, and environmental interests in Maine's beaches were often in conflict. Fink later initiated a beach assessment program, which illustrated why certain stretches of shoreline behaved differently than others.

University of Maine research and outreach influenced fisheries management as well. In 1975, Congress was about to pass what would become the Magnuson-Stevens Fishery Conservation and Management Act. At that time, fish harvested by Maine fishermen stayed local, only traveling perhaps as far as Boston or New York. The Gulf of Maine fishery was dominated by fleets of foreign fishing vessels, factories at sea that fished harder than anyone before. Even at Gorton's in Gloucester, Massachusetts, forty percent of the cod came from Polish boats. To understand how the new rule, which would prohibit foreign fishing fleets within two-hundred miles of the nation's shoreline, would affect Maine fishermen, Jim Wilson from the Department of Economics at the University of Maine and his Sea-Grant-Program-funded student research assistant Robin Alden interviewed people about their perceptions of the impending legislation. "We had an industry that was nearly unregulated –nobody had experience dealing with regulators. People were being thrust into this world where the government would have a large say in how their lives ran," recalled Wilson. Wilson came up with the idea for the Maine Fishermen's Forum. "The idea of the forum was to build a community that could start to prepare for this brave new world." The first forum was held in 1975, and in 2015 the Maine Fishermen's Forum celebrated its fortieth anniversary.

The same year saw a proposal for a Center for Marine Studies, a program that would focus on the Gulf of Maine region and near-shore estuaries, including fisheries biology; aquaculture; seaweed biology; shallow-water oceanography; sea-floor ecology; and marine legal, policy, and socioeconomic-process studies. The other units were the Institute for Quaternary Studies, Migratory Fish Research Institute, Marine Law Institute, and Marine Advisory Service and Extension program. The Sea Grant Program expanded and became a unit in the Center for Marine Studies in 1980, when Maine became among the first twenty institutions to advance to "Sea Grant College" status, an achievement which also brought more funding and staff to the Sea Grant Program. The Maine Department of Marine Resources, Maine State Planning Office, Regional Fisheries Management Council, and Bigelow Laboratory were all "cooperating units."

But dark days lay ahead for the Darling Marine Center. Under the



The University of Maine and the University of New Hampshire gained sea-grant status in 1980. This image shows representatives from the University of Maine and the University of New Hampshire, along with Interim President of the University of Maine Kenneth Allen (center) and Chancellor of the University of Maine Patrick McCarthy (second from left) receiving the award. The University of Maine became one of the first twenty institutions in the United States to advance to “Sea College Grant” status, which brought increased funding and staff to the sea- grant program.

“Center for Marine Studies” proposal, the Department of Oceanography was retained and continued to be based at the Darling Center. But late in 1979, the University of Maine announced plans to move the Oceanography Department to Orono, citing fuel and transportation costs. Dismayed, Darling Center faculty and students protested, citing their need to be close to the coast.

1980s

University leaders delayed moving the Oceanography Department, only to announce its dissolution in 1981. Unhappy with the decision, faculty found themselves reassigned to the Botany, Geology, and Zoology Departments and split between the Orono campus and the Darling Marine Center. Demand for more degree offerings in marine science led

to the creation of a minor in marine resources in 1983, coordinated by Robert Bayer, who joined the University of Maine faculty in 1972.

Significant investment in lobster science advanced with the founding of the Lobster Institute at the University of Maine in 1987, after leaders from Maine's lobster industry associations approached the Sea Grant Program in search of better ways to connect with University of Maine researchers. President Dale Lick authorized the formation of the Lobster Institute, with the Sea Grant Program's David Dow as its first executive director. Dow, a former lobsterman, began his career at the University of Maine in the 1970s as a marine specialist with Cooperative Extension. The Maine-based Lobster Institute created a board of advisors with representatives from all industry sectors, geographically spread from New York to Newfoundland. In the 1980s, a lobsterman who agreed with a government scientist was a rare if not impossible find. Number-crunching by regulatory agencies showed that lobsters were being overfished, while the men and women hauling traps in the Gulf of Maine were harvesting record numbers of lobsters. Everyone was using a different source of information, and nothing made sense. Disagreement led to mistrust, which led to some bitter words and overall discontent in the world of lobsters. With funding from Sea Grant Program, the university conducted the first tagging studies to follow long-term movements of individual Maine lobsters, revealing that lobsters were not sedentary, as commonly believed, but instead made long-distance migrations across the sea floor. This work was unique in its engagement of lobstermen (via the Maine Lobstermen's Association) in research planning.

In 1984, the Sea Grant Program funded ecologist Robert Steneck to look at nursery habitat for American lobsters, which produced an effective method to sample young lobsters using underwater vacuums. Steneck, who received his master's degree at UMaine and returned as a research assistant professor in 1982, was at that time beginning his research into the submarine environment, including plant-herbivore interactions and kelp forests ecology. The sampling methods he developed for juvenile lobsters prompted subsequent grants to Richard Wahle at Maine's Bigelow Laboratory for Ocean Sciences that helped in the creation of the quantitative American Lobster Settlement Index in 1989.

Industry, too, had more demands. Atlantic salmon farming had started in Cobscook Bay, prompting microbiologist Paul Reno to found the Aquatic Animal Health Laboratory, and conduct research on salmon-cage impacts on the ocean bottom. Findings were relayed to the Maine Department of Marine Resources, who used the results to make

lease decisions for new sites. The Maine State Legislature established the Maine Aquaculture Innovation Center, based at the University of Maine, to promote applied aquaculture research, support policy development, and share aquaculture information.

UMaine's success with oyster culture prompted technician Sam Chapman to transfer the hatchery technology developed at the Darling Marine Center to Washington County, where soft-shell clam landings had been in decline. Chapman helped create the Beals Island Regional Shellfish Hatchery, Maine's first public shellfish hatchery. It was the first shellfish management program in the United States using hatchery-reared, soft-shell clam juveniles to rebuild depleted stocks.

Hero made its last cruise in the 1984-1985 season. Professor Les Watling, who joined the Oceanography Department in 1976, embarked on the last ride. "It was both an adventure and a nightmare," he recalled. "We had crew members who were drunk on a regular basis and put the ship in jeopardy more than once. On our return we got caught in the start of the Falklands War between Argentina and Britain. But she was a beautiful boat."

Continuing his efforts with commercial ground-fishermen, James Wilson worked with the city of Portland to develop the Portland Fish Exchange, the first display auction in North America, which opened in May 1986. Rather than buyers purchasing an entire boatload of fish sight unseen, the display auction allowed dealers to look at the fish and buy based on quality, thus garnering a fair and higher price for better quality fish.

1990s

University of Maine President Dale Lick once proclaimed, "We want to be the world's experts on the Gulf of Maine! And that involves learning how we can make the Gulf more productive, how we can keep it environmentally safe, and how we can use it as a resource to support the state and the region."⁷ Equipped with a submarine, and clues from off-shore lobster fishermen about where to look, Les Watling began searching for cold-water corals in the deep canyons of the Gulf of Maine. He found them at depths of three thousand feet, an unprecedented discovery. Watling's discovery of deep-water corals in cold waters is just one example of knowledge gained about the University of Maine's own marine backyard. The Penobscot Bay Research Collaborative helped show

the importance of surface temperature in Gulf of Maine circulation, plus the influence of the Penobscot River that forces the Eastern Maine Coastal Current offshore at Penobscot Bay, keeping the eastern coast cooler than the western Gulf of Maine.

University of Maine anthropologist James Acheson had been studying the adoption of wire lobster traps (as compared with the traditional wood traps) in the lobster fishery, beginning a long-term research program on the human dimensions of lobstering. Acheson's 1988 book, *The Lobster Gangs of Maine*, laid the groundwork for fisheries managers and lobstermen to understand the web of relationships that determine their survival and quality of life on the water. Acheson's work, along with Wilson's, showed that the collective actions of Maine lobstermen created conditions required for conservation. As a result of their work with lobstermen, the Maine legislature instituted a new law in 1996 empowering seven regional councils to "co-manage" their local lobster populations through "lobster zones," a significant step in maintaining the sustainability of the important and iconic industry.

Extension activities during the period included fishing business management workshops, courses in fishing safety that earned the Marine Advisory Program a Public Service Commendation from the United States Coast Guard, and local clam flat management. Several marine extension specialists had been added, and, in 1999, Interim Extension Leader Ron Beard helped create the memorandum of understanding between the Sea Grant Program and Cooperative Extension that created the Marine Extension Team, with members based in coastal communities from Wells to Eastport.

Beginning in the 1990s, Marine Extension Associate Chris Bartlett assisted salmon farmers and other fishermen from his base in Eastport. He served on the committee that produced biosecurity guidelines implemented at twenty-five salmon farming sites, helping secure the economic vitality of salmon farms in Maine. Dr. Kevin Eckelbarger, a marine biologist who studied reproduction and development of deep-sea invertebrates, left the Harbor Branch Oceanographic Institute in Florida to accept the Darling Marine Center director position in 1991. Over his twenty-three-year tenure in the position, Eckelbarger oversaw much change to the property, and initiated a major fundraising effort for expanding the laboratory. With funding from the NSF Biological Field Stations and Marine Laboratories Program, the facilities grew to include two more classrooms, a dive building, a vessel operations building, a dormitory and dining hall, a coastal research vessel, a second seawater

laboratory, an expanded library, and updated laboratory instrumentation and oceanographic sampling gear. Creation of the Semester by the Sea Program in 1993 initiated a new tradition of undergraduate teaching at the Darling Center.

In 1996, the University of Maine established the School of Marine Sciences with existing faculty, and began offering an undergraduate degree in marine science. In addition to faculty of the former Oceanography Department, the new school drew on the marine expertise of faculty transferring from, or taking split appointments with, other academic units such as Anthropology, Botany and Plant Pathology, Economics, and Zoology. The initial success on which the school and its strong reputation were built was homegrown. Shortly thereafter, responsibility for the already existing, interdepartmental bachelor of science degree program in aquaculture was assigned to the School of Marine Sciences with the Oceanography Department having been dissolved as an academic department, its master's and doctoral programs moved to the new school. Additional new MS and PhD programs were created in Marine Biology. Finally, an MS degree program in Marine Policy was created.⁸

With the addition of Joseph Kelley as the state's marine geologist based at the University of Maine and coastal geologist Daniel Belknap in 1982, the university was prepared to expand its studies of coastal processes. Their research on predicted sea-level rise supported revised Coastal Sand Dune Rules about construction of breakwaters, jetties, and other structures within the Maine Natural Resources Protection Act. These were the strongest beach protection regulations in the country and became a model for at least six other states. In 1989, Kelley published *Living with the Coast of Maine*. Their research also helped to inform the Southern Maine Beach Profiling Program, coordinated by the Sea Grant Program and the University of Maine Cooperative Extension since 2002. The program expanded to fifteen beaches and some two hundred volunteers, financially supported by participating towns and property owners. Profiling data, presented every two years at the Maine Beaches Conference, has informed dune restoration plans in South Portland, seawall replacement and beach nourishment decisions in Scarborough and Wells, erosion assessments in Saco, and piping plover management in Ogunquit.

Citizen volunteers also played a large role in the Maine Healthy Beaches Program, a non-regulatory swim beach bacteria monitoring program coordinated by the Marine Extension Team, in partnership with the Maine Department of Environmental Protection and partici-

pating communities. This unique partnership approach helped to identify and fix sources of bacteria polluting beaches, opening shellfish beds for harvesting, protecting and restoring coastal habitats, and improving wastewater infrastructure in coastal communities.

The Twenty-First Century

The School of Marine Sciences, with faculty based in both Orono and the Darling Marine Center, pursued longstanding areas of research while expanding to address contemporary issues. Les Watling's deep-water Gulf of Maine research was continued by Dr. Rhian Waller, associate research professor at the University of Maine's School of Marine Sciences, who also conducted research in Antarctica. The university established the Center for Collaborative Aquaculture Research (CCAR) at the recently purchased recirculating hatchery facility in Franklin, Maine. The oyster and mussel aquaculture industries were thriving in Maine. CCAR and Sea Grant, working with the Maine Aquaculture Association and Maine Aquaculture Innovation Center, helped develop new potential aquaculture species, including scallops, clams, urchins, and sea vegetables. In 2009, aquaculture research and education across multiple colleges and more than forty faculty members across campus were brought under the Aquaculture Research Institute. In 2014, the NSF Experimental Program to Stimulate Competitive Research (EPSCoR) awarded twenty million dollars to the University of Maine for development of the Sustainable Ecological Aquaculture Network.

Partnership among the university and state and federal agencies, such as the National Oceanic and Atmospheric Administration, United States Fish and Wildlife Service, and United States Geological Survey informed management of lobster, sea urchins, mussels, clams, seaweeds and sea cucumber, as well as migratory fish, such as Atlantic salmon and sturgeon. Dr. Rick Wahle and the American Lobster Settlement Index moved to the University of Maine, expanded to more than sixty sites, and served as a springboard for numerous research projects funded by NOAA, NSF, and NASA. The index became one of the indicators of the health of the lobster resources used by federal stock assessment scientists.

Meanwhile, the Maine Fishermen's Forum continued to be held annually, the largest and only event of its kind in the Northeast. It evolved over the years to stay on top of the latest issues in the fishing industry,

from international law to boat insurance, cold-water survival, cooking demonstrations, and marketing. Tens of thousands of dollars in scholarships were awarded to students from Maine fishing families. The forum was credited with the intent of opening up dialogue between scientists and fishermen, furthering the development of academic fisheries science and opening doors at the University of Maine and other colleges and research institutions. The forum provided a place for university scientists, like Wilson, to become familiar with questions in the industry, and also a place for the scientists to present their information in a way that would enlist rather than alienate people, according to Robin Alden, who after helping to start the forum served as Commissioner of the Department of Marine Resources. “The forum helped what previously was a very insular marine science community recognize that there are real research questions in the industry,” she said. “Meetings between scientists and fishermen were horrendous early on, and now there are some good discussions. Clearly they are two different cultures, but they’ve learned to talk to each other through the forum,” said Wilson.

The Portland Fish Exchange, another Wilson success story, eventually controlled over ninety percent of Maine’s groundfish market and roughly twenty percent of New England’s total annual catch. New Bedford and Gloucester copied it, and the exchange continued to be a cornerstone of Portland’s working waterfront. The Lobster Institute, directed by Bayer since 1995, remains the central clearinghouse for information and a vital communication link among lobster harvesters, dealers, pound owners, processors, scientists, and resource managers, industry-wide. It has initiated or supported research focusing on lobster health, biology, ecology, and economics. The institute has sponsored numerous conferences and seminars, including the international Canada/US Lobstermen’s Town Meeting held annually since 2004. The Town Meeting brings lobstermen from all regions along the North Atlantic Seaboard together to talk about their shared resource and to exchange ideas, challenges, and information about what they are seeing out on the waters.

The University of Maine’s sea grant became a full Sea Grant College Program in 2004. One of thirty-three state-federal partnership programs across the nation’s coastal and Great-Lakes states, Puerto Rico, and Guam and one of twenty based at a land-grant institution, the Maine Sea Grant Program continues its mission of applied research, education, and engagement with Maine’s coastal communities. As a formal partnership with Cooperative Extension, the Marine Extension Team is

unique among sea-grant programs and has served as a model for the nationwide sea-grant network.

The Darling Marine Center, 170 acres bordering more than a mile of pristine water frontage on the Damariscotta River estuary, has become home to a year-round population of some fifty School of Marine Sciences faculty, staff, and students. In the summer, the population swells to more than one hundred, with undergraduate interns, summer students, campers, and visiting scientists. All have access to the Louise Dean Library, a branch of the University of Maine's Fogler Library, and its more than ten thousand marine science books and eight thousand bound periodical books.

The School of Marine Sciences, the State of Maine's only graduate-degree program in marine sciences, has grown to some 240 undergraduate students and fifty graduate students. Many University of Maine alumni have gone on to leadership positions in state and federal natural resource agencies. Marine science at the University of Maine has come a long way from the days when the Oceanography Department was dissolved and the Darling Marine Center faced an uncertain future. Physically, the School of Marine Science's main administrative offices moved from the second floor of Libby Hall, where the Oceanography Department was located those many years ago, to newly renovated and expanded facilities in Aubert Hall. From an educational perspective, the University of Maine has become a highly sought after destination for prospective students seeking degrees in marine science.

NOTES

1. University of Maine Center for Marine Studies, 4 March 1966, Fogler Library Special Collections, University Manuscripts, Box 698 Folder 6.
2. "125-foot Wood Research Ship Built," *The Polar Times*, June 1969, 12.
3. William J. Driedzic, J. Malcom Shick, and George N. Somero. 2011. Obituary: Bruce D. Sidell. *The Journal of Experimental Biology* 214: 2453-2454. In recognition of his long career of research and service to the Antarctic scientific community, the Sidell Spur on Brabant Island in the Palmer Archipelago, overlooking an area where he often fished for specimens, was named for him by the National Science Foundation and the United States Geological Survey.
4. Harold W. Borns Jr., Richard C. Campana, John H. Dearborn, Walter L. Schneider, and David Dean. *Proposal for a Graduate Program in Oceanography at the University of Maine*. Orono, ME, 1967.

5. Marine aquaculture efforts had started in Maine in 1949, when the Department of Sea and Shore Fisheries, with the Federal Bureau of Commercial Fisheries, began experimental cultivation of the European oyster, soft-shell clams, and other species. But more investment was needed to launch an industry.
6. David Dean, *Early History of the University of Maine's Sea Grant Program*, undated manuscript, Maine Sea Grant archive files.
7. Dale Lick, Dale. "Lick Looks at Future for Gulf of Maine." *Making Waves* (South Bristol, ME: Darling Marine Center, 1984), 2(2):4.
8. David Townsend, *Self Study Document: School of Marine Sciences, for Academic Program Review* (Orono, ME: University of Maine, 2003).