

THE
UNIVERSITY
OF RHODE ISLAND

Graduate School of Oceanography

SPECIAL ISSUE, FALL 2016

GSO

Aboard



John
Knauss:
Reflections on
our founding dean
and his legacy



Contents

- 6 REMEMBERING JOHN KNAUSS**
BY BRUCE CORLISS
- 8 WAYPOINTS**
- 10 AN OFFER MADE AND ACCEPTED**
- 12 MAKING HIS MARK**
BY WALTER MUNK
- 13 JOHN, REVELLE, AND THE ALBATROSS**
BY ARTHUR MAXWELL
- 14 EARLY YEARS WITH JOHN KNAUSS**
BY D. JAMES BAKER
- 16 WHEN JOHN KNAUSS WAS NEW AT GSO**
BY CANDACE OVIATT
- 17 RIDING IN HIS WAKE**
BY JIM YODER
- 18 A HARD ACT TO FOLLOW**
BY ROBERT DUCE
- 19 A GOOD MAN IN A STORM**
BY JUDITH SWIFT
- 20 A VOICE FOR MARINE SCIENCE
IN A SEA OF DIPLOMATS**
BY DENNIS NIXON
- 21 KNAUSS' NOAA LEGACY**
BY CRAIG MCLEAN
- 22 THE DEFINITIVE ANSWER**
BY RICK SPINRAD
- 23 AN EXEMPLARY MENTOR**
BY MARGARET LEINEN
- 24 THE MAN I KNEW**
BY CHRISTOPHER DUP. ROOSEVELT
- 25 LOOKING AHEAD**
BY BRUCE CORLISS
- THE OCEAN UNIVERSITY INITIATIVE
A NEW VISION FOR THE
NARRAGANSETT BAY CAMPUS**



Special Issue, Fall 2016

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Cover: John Knauss addresses the audience gathered for the 1976 christening of the R/V Endeavor.

John Knauss

A Special Issue of Aboard GSO

BRUCE CORLISS, DEAN, GRADUATE SCHOOL OF OCEANOGRAPHY

This issue of *Aboard GSO* is dedicated to the memory of Dean John A. Knauss who passed away November 19, 2015, at the age of 90. We have included in this issue remembrances from colleagues, former students, and friends of Dean Knauss who had a broad and lasting impact on the Graduate School of Oceanography, the University of Rhode Island, the State of Rhode Island, and the nation. As we look back over his remarkable career as a visionary oceanographer, we can appreciate his ability to promote dialogue, reach consensus, and move forward on a diverse set of challenging issues facing the oceanographic community. The legacy he left is a rich one that serves as a foundation for the future of GSO and the Narragansett Bay Campus.

Many years ago I had an opportunity to ask the Dean what he attributed his success to in making GSO so successful in the early years. This was a topic that many of us discussed while graduate students. He replied quite simply, "Support your people as best you can." He went on to say that it was a different time then without the regulations that existed at the present (and this was at least 15 years ago). But, of course, his success was based on much more than just supporting the people at GSO and involved his hard work, dedication, judgment, and insights into the evolving science of oceanography.

In thinking about his long career, I would add two factors that enabled him to develop GSO, to build marine studies across the URI campus, and to help create the NOAA Sea Grant program. One characteristic was his ability to form partnerships. The partnership with Senator Claiborne Pell, for example, was one of the most successful in Rhode Island over the last 50 years and is well known. But he also formed partnerships with University of Rhode Island senior administrators, most notably with President Francis Horn, who was an early supporter in building GSO to an internationally recognized institution in the first 25 years of its existence. The second characteristic that I think was important was his attention to detail. I was reminded of this recently while re-reading a term paper that I had written for his Physical Oceanography class and was struck by the thoughtful and constructive comments he had carefully written. He approached his role as Dean with great attention to detail on all aspects of the institution, including his role as a teacher of the next generation of oceanographers.

I found his comment to me that things were different in the early days was insightful because he recognized that conditions and institutions evolve over time; they do not remain unchanged. That observation is particularly useful for GSO today with changes in funding streams and different educational expectations and research challenges.

We conclude this issue with a view of where GSO and the Narragansett Bay Campus may go in the years to come. The recently completed master plan for the campus includes a summary and an overview of GSO's role at URI as the "Ocean University." As we move forward in the years to come, Dean John Knauss' contributions will continue to guide the evolution of the GSO and will serve as a lasting legacy to a visionary oceanographer. 🎀



Reflections

*On John Knauss' life
as a scientist,
administrator, mentor,
and renaissance man*

Remembering John Knauss

BRUCE CORLISS, DEAN, GRADUATE SCHOOL OF OCEANOGRAPHY

Dr. John A. Knauss, founding Dean of the Graduate School of Oceanography (GSO), Under Secretary for Oceans and Atmosphere in the Department of Commerce, and Administrator of the National Oceanic and Atmospheric Administration (NOAA) from 1989 to 1993, died peacefully on November 19, 2015, following a period of declining health in Saunterstown, RI, where he had lived for the last 53 years. He was 90 years old at the time of his death.

In 1962, as founding Dean of GSO, John created an oceanographic institution at the University of Rhode Island that became nationally and internationally recognized for its breadth of oceanographic and marine programs. In partnership with Senator Claiborne Pell and Dr. Athelstan Spilhaus, he was instrumental in the formulation and development of the National Sea Grant Program in 1966 that has had a major impact on marine science, policy, and management in the United States. He was widely viewed as an international leader in oceanography and marine policy over a long and productive career.

John Knauss was born in Detroit, Michigan, on September 1, 1925, to Karl and Loise Knauss, both of whom were teachers. He attended the Massachusetts Institute of Technology, where he studied meteorology as part of the United States Navy's V-12 program, met his future wife Lynne, and received his B.S. in meteorology in 1946 and was commissioned as an Ensign in the United States Navy. He was assigned to Weather Central on North Island in San Diego, California, where he served as a weather forecaster for the San Diego area as well as for all the pilots who flew from North Island. Upon leaving active duty with the Navy, John took a position with the Navy Electronics Laboratory, but then returned to Michigan to study physics. John received his Master's of Science degree in

physics from the University of Michigan in 1949. After spending some time traveling in Europe, John returned and started a job with the Office of Naval Research (ONR) at the Navy Hydrographic Office in Suitland,



The FS-206 Army vessel was towed from the Navy mothball fleet up the Sacramento River to the Campbell Ship Yard, San Diego, where the task of putting her in commission as R/V *Trident* began.

Maryland, where he helped distribute federal dollars to oceanographers. With ONR colleagues he was instrumental in convincing the Navy to support oceanographic research at universities. But he soon realized that he wanted to pursue oceanography as a career and decided to attend the Scripps Institution of Oceanography to study with Roger Revelle. In his Ph.D. dissertation he made the first comprehensive measurements of the Pacific Equatorial Undercurrent, demonstrated this to be a major component of the Pacific Ocean circulation, and went on to discover a similar current in the Indian Ocean. He received his Ph.D. in 1959.

In 1962 the University of Rhode Island recruited Knauss to create a new oceanographic institution, the Graduate School of Oceanography, at URI's Narragansett Bay Campus. He recognized having a major research facility on Narragansett Bay was a unique opportunity, with students being able to take non-oceanography courses on the main campus only six miles away. After

buying a mothballed 180-foot, one-thousand-ton World War II Army vessel for \$500 through the federal government's educational surplus program, Scripps helped Knauss get the vessel to Rhode Island in 1962. After transiting the Panama Canal, it arrived in Narragansett Bay carrying some of John's household belongings and those of the first two new faculty at GSO. The R/V *Trident* provided an opportunity for faculty and students to carry out a wide range of oceanographic research for 15 years in the Atlantic Ocean, the Mediterranean and Caribbean Seas, Gulf of Mexico, and the eastern tropical Pacific Ocean. As Dean, he oversaw the acquisition in 1977 and subsequent operation of the R/V *Endeavor*, which is owned by the National Science Foundation and continues to be operated throughout the Atlantic Ocean by GSO.

Over his 25 years as Dean, Knauss built a major oceanographic institution at the University of Rhode Island, with 41 faculty, 73 professional staff, 169 graduate students, 12 buildings, and operation of the R/V *Endeavor* at the time of his retirement. In addition to his responsibilities at GSO, he was Provost for Marine Affairs from 1969 to 1982, Acting Vice President for Academic Affairs in 1976, and Vice President, Marine Programs from 1982 to 1987. He had a significant and long-lasting impact at the University of Rhode Island in these roles. With Lewis Alexander, he established the Department of Geography and Marine Affairs, which offered the first marine affairs degree program in the country and led to the first Ph.D. program in marine affairs. He fostered the vision that marine programs should be important throughout the university and helped develop the nation's first Ocean Engineering department, a Resource Economics department with strong marine focus, and the evolution of the Animal Sciences department to Fisheries, Animal, and Veterinary Sciences.



He retired from URI in 1990 and was Dean and Professor Emeritus at GSO at the time of his death.

John Knauss served on many national and international organizations and committees during the course of his career including as President of the American Geophysical Union, President of the Oceanography Section of the American Geophysical Union, member of the Board of Directors of the National Oceanography Association, President of the Association of Sea Grant Program Institutions, Vice President of the American Association for the Advancement of Science and Chair of its Section on Atmospheric and Hydrospheric Sciences, and Chair of the University-National Oceanographic Laboratory System (UNOLS).

John Knauss received a number of awards and honors in recognition of his contributions to oceanography and marine affairs, including the National Sea Grant Award, Rhode Island Science and Technology Award, Ocean Sciences Award from the Ocean Sciences Section of the American Geophysical Union, American Geophysical Union Athelstan Spilhaus Prize, and the Ram Award of the URI Alumni Association. He was a Fellow of the American Association for the Advancement of Science, American Geophysical Union, and the Marine Technology Society. He was inducted into the Rhode Island Heritage Hall of Fame in 1983 and was awarded an honorary Doctor of Science from the University of Rhode Island in 1992.


Over his 25 years as Dean, Knauss built a major oceanographic institution at the University of Rhode Island.

Dean Knauss was involved with a number of important national initiatives during his career. He was a member of the influential Stratton Commission and the only academic oceanographer on the commission that produced the report, *Our Nation and the Sea: A Plan for National Action*, in 1969. The report provided a plan for the use of the oceans and the governmental structures needed to achieve the objectives of the plan and led to the creation of the National Oceanic and Atmospheric Administration (NOAA) and the formation of the Coastal Zone Management Act. He was very interested in freedom of research on the high seas and was a delegate to the Law of the Sea meeting, where he was critical in the discussions to ensure access for research on continental margins beyond the 200-mile limit. Over the years, he wrote a number of important papers on law of the sea.

One of Dean Knauss' notable achievements in collaboration with Senator Claiborne Pell and Dr. Athelstan Spilhaus was the creation of Sea Grant. The idea of creating sea grant colleges came about from their discussions to create a program similar to land grant colleges. A national conference to discuss such a concept was held in 1965, and the National Sea Grant College Program and Act went into effect in 1966. In recognition of Knauss' leadership role in the development of Sea Grant, its flagship program of Washington, DC, internships launched in 1979 was eventually named the Dean John A. Knauss Marine Policy Fellowship.

John Knauss was also known for his keen sense of humor. He was a member of the American Miscellaneous Society, formed "to see the lighter side of heavier problems," and together with Art Maxwell and Gordon Lill created the Albatross Award, which they immediately awarded to themselves for creating the award. He later wrote, "since it was their idea in the first place, they gave the first one to themselves, knowing they might not otherwise be nominated."

John Knauss was appointed Dean of the Graduate School of Oceanography at the age of 37 in 1962, three years after graduating from the Scripps Institution of Oceanography, at which time the oceanography chairs from the University of Washington, Oregon State University, and Texas A&M were also Scripps graduates. At the time of his death, the Dean and Director of the Scripps Institution of Oceanography, the Vice President and Dean of the Graduate Program at Woods Hole Oceanographic Institution, and the Dean of the Graduate School of Oceanography were all alumni of GSO with John Knauss as their dean. Knauss' leadership and dedication to oceanography made a lasting impression on these and many other alumni who had the good fortune to be students during his tenure. His many contributions as a marine scientist and educator left a lasting legacy to the Graduate School of Oceanography, the University of Rhode Island, the State of Rhode Island, and the nation. 🦋

 **Read the John Knauss tribute in Oceanography online**
<http://gso.uri.edu/knauss>

Waypoints



1925

Born on September 1 in Detroit, Michigan, to Karl and Loise Knauss



1943

Begins service in the U.S. Navy, serving until 1946 and again from 1953 to 1954, with final rank of LT. USNR

1945

Meets Lynne Mattson, a Radcliffe student, at a church dance in Boston in 1945, then reconnected with her at his 5th MIT reunion in 1951 and carried on a long-distance courtship until their marriage in 1954

1946

Completes B.S. in meteorology at the Massachusetts Institute of Technology

1947

Begins his professional career as a physicist with the U.S. Navy Electronics Laboratory

1949

Receives M.S. in physics from the University of Michigan



1954

Marries Marilyn "Lynne" Mattson, a marriage lasting 53 years until her passing in 2007; together raised two sons, Karl and William



1955

Joins the Research Staff at Scripps Institution of Oceanography, a position he held until 1962

1959

Receives a Ph.D. from Scripps Institution of Oceanography

1959

Receives the first Albatross Award from the American Miscellaneous Society with Arthur Maxwell and Gordon Lill (*p. 13*)

Sea Grant

1965

With URI colleagues, creates the Law of the Sea Institute, based for its first decade at the University of Rhode Island

1966

Selected by President Johnson for membership on the Stratton Commission

1966

Plays a leadership role in the creation of the National Sea Grant College Program

1969

Named URI Provost for Marine Affairs



1962

Serves as chief scientist for two, three-month legs of the International Indian Ocean Expedition in 1962 and 1963 (*pp. 14-15*)

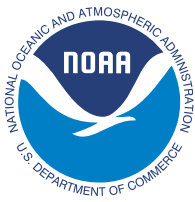
1920

1940

1950

1960

1965



1970

NOAA is created by President Nixon as recommended by Knauss and the Stratton Commission

1971

UNOLS is chartered based on recommendation of the Stratton Commission; appointed to a two-year term as UNOLS Chair in 1974

1972

Coastal Management Act of 1972 is enacted as a recommendation of the Stratton Commission

1976

Serves as URI Acting Vice President for Academic Affairs

1976

GSO's purpose-built intermediate class research vessel, R/V *Endeavor*, is christened

1979

Sea Grant Intern Program launches; renamed the Dean John A. Knauss Marine Policy Fellowship in 1987 (p. 15)

1970

1983

Inducted into the Rhode Island Heritage Hall of Fame



1983

Forms GSO's first advisory council, launched with Governor Phillip Noel as chair

1983

Honors founders of the Narragansett Marine Laboratory, Charles and Marie Fish, at a rededication of the Charles and Marie Fish Laboratory



1986

Plays a key role in GSO's 25th Anniversary celebration

1987

Retires after 25 years as Dean of GSO

1989

Appointed by President George H.W. Bush to a four-year term as NOAA Administrator

1980

1990

Retires from University of Rhode Island and is appointed Graduate School of Oceanography Dean and Professor Emeritus

1991

Appointed to two-year term as U.S. Commissioner to the International Whaling Commission

1992

Awarded an honorary Doctor of Science from the University of Rhode Island

1994

Officially concludes his service to the National Advisory Committee on Oceans and Atmosphere, having served in many roles, including chair, since 1978 (p. 14)

1994

Appointed Research Associate at Scripps Institution of Oceanography



1998

Elected President of the American Geophysical Union

1990



2000

Celebrates 75th birthday and Knauss Quadrangle is named in his honor



2006

Awarded the Waldo E. Smith Medal for "extraordinary service to geophysics"



2000



2011

Honored at GSO's 50th Anniversary celebration



2015

Peacefully passes away on November 19 at his home in Saunderstown, Rhode Island

2016

Knauss Terrace, funded with support from many friends, family, and alumni, dedicated on September 9

2010

An Offer Made and Accepted

Excerpts from correspondence leading to John Knauss' hiring as GSO's founding dean

December 30, 1960

Ernest Hartung, URI Dean of Graduate Studies and Chairman of the Committee on Selection, to John Knauss

As you may be aware, Dr. Charles J. Fish, Director of the Narragansett Marine Laboratory of the University of Rhode Island, has asked to be relieved of the Directorship at some time during the course of the present academic year in order to devote full time to his ocean research program and graduate students.

Accordingly, President Horn has appointed a committee to seek a successor to Dr. Fish as Director of the Laboratory.

In the canvass for qualified prospects, your name has been called to the committee's attention, and we should like to inquire if you might be interested in becoming a candidate.

The position will entail overall responsibility for the continuing development of the Laboratory in all of its operation and will require much in the way of administrative judgment, research acumen, and academic interest from whom ever is finally appointed. Academic rank of Professor will go with the position and the appointment will be on the so called "12 month basis" rather than on the "9 month basis." Salary is open to negotiation and will depend upon the qualifications of the candidate.

January 23, 1961

John Knauss to Ernest Hartung

My first reaction to your letter inquiring as to whether or not I would like to be considered for the directorship of the Narragansett Marine Laboratory was negative. I am quite happy here at Scripps. My research has been going very well these past few years. I have adequate facilities and nearly complete freedom in my work. Intellectually, Scripps is a very exciting organization, and both my wife and I find La Jolla a delightful place in which to live.

In spite of all these advantages, I find myself tempted by the possibility of becoming Director of the Narragansett Marine Laboratory; however, after I tell you my reasons, your Committee may not be tempted by me. Furthermore, since I know almost nothing about the policy of the University of Rhode Island, I am uncertain that what I have in mind can be successively carried out within the framework of the University.



Research in oceanography is going to grow in this country in the next decade, and I am quite certain this means the development of one or more major oceanographic laboratories of a size comparable to the present Scripps Institution of Oceanography and the Woods Hole Oceanographic Institution. I do not believe these two labora-

tories can continue to expand indefinitely without some changes in their internal structure, and I think there is already some evidence that Scripps, at least, is exceeding its optimum size. Hence, I see no alternative to the emergence of other major oceanographic institutions in the next decade.

These new laboratories may start from scratch, or they may build on structure that already exists, such as the Narragansett Marine Laboratory. I think it likely that these major institutions will grow from existing laboratories, and, furthermore, that they will be connected with universities.

It is the possibility of building the Narragansett Marine Laboratory into a major oceanographic research institution that tempts me to consider the position of Director. By "major institution" I mean one with an annual budget of two to three million dollars and with one or more oceanographic vessels that can, and do, go anywhere on the world's oceans. I assume, of course, that this institution would be as good as Woods Hole or Scripps. I hope it might be better.

Given the proper conditions, the opportunity of building such an institution is one of the few challenges in oceanography that I consider strong enough and important enough to induce me to leave my very pleasant life at Scripps at this time for an administrative position elsewhere. If the administration of the University of Rhode Island is sympathetic to such plans for an oceanographic institution, I would be interested in exploring the possibilities with you further. In this respect I believe I should tell you immediately that I have been chairman of one of the subcommittees of the National Academy of Sciences Committee on Oceanography and as such I have made certain commitments, both about myself and Scripps Institution of Oceanography, concerning work in the Indian Ocean in 1962-63 as part of the International Indian Ocean Expedition. If I should leave Scripps some solution will have to be found to these commitments I have made to work in that area.

January 31, 1961

Ernest Hartung to John Knauss

Our thanks for your recent letter relative to the possibilities at the Narragansett Marine Laboratory. President Horn has, on more than one occasion, voiced the opinion that Oceanography presents the University with one of its major challenges and major opportunities for growth and service. While I certainly could not suggest to what extent the administration would buy your suggestion for a ten fold expansion of the present operation, I do know that it is not interested in the candidacy of one who would be primarily concerned with maintaining the status quo, or conducting a program of expansion on a minimum basis.

March 7, 1961

Ernest Hartung to John Knauss

Since our last correspondence, the Trustees have made an administrative change in the status of the laboratory which you should know about. The organization will, as of July 1, 1961, be known as The Graduate School of Oceanography of the University. The position which we are now concerned



with will no longer be a directorship but will carry the title of Dean.

The move will secure far more independence of action for the organization since it will now stand by itself as a unit within the University and not as a division under the College of Arts and Sciences. Its academic program will be tied to the overall University picture through coordination in this office but beyond that the dean will be directly responsible to the President. In my own opinion this should make the position somewhat more attractive by permitting the new official a freer hand in the management of the laboratory's affairs.

March 13, 1961

John Knauss to Dr. Alfred Redfield, Woods Hole Oceanographic Institution

It may be presumptuous of me to write this letter, and if you think it is I trust you will tell me; but I would like some information and advice.

I received a letter in January asking if I were interested in the position of Director of the Narragansett Marine Laboratory of the University of Rhode Island. Enclosed is a copy of my reply in which I tried to state my position as precisely as possible. Apparently my ideas met with some interest because I have been asked to come back for an interview.

My problem is simply this: is there a chance of building a distinguished research institution and school of oceanography at the University of Rhode Island? I know almost nothing about the state universities in New England.

March 17, 1961

Alfred C. Redfield to John Knauss

The geographical location is a good one for an oceanographic institute. They have deep water for berthing ships and are on the main railroad line between New York, New Haven, Providence, and Boston—where good universities are located. I once suggested that

WHOI might be moved there to get more elbow room for expansion. The thought was that we should move closer to a better university.

March 29, 1961

John Knauss to Ernest Hartung

I am very appreciative of the effort to which you and others went to make my stay at the University of Rhode Island as pleasant and informative as it was. It was a very enjoyable visit. You have effectively allayed most of the fears I have had with respect to the Laboratory and the University and I am quite excited about the possibilities for the future.

Most of Saturday morning was spent with Henry Stommel, who is now at Harvard and who is considered by most of us as the world's leading oceanographer. We divided our time between arguing about the deep circulation, about which both of us are interested, and the possibilities at Rhode Island. I believe I left him almost as excited about the place as I am. I feel very good about this for two reasons; one of which is, that it is always gratifying to have your opinion shared by others whom you respect; the other is that it seems possible we might lure Stommel to Rhode Island. If we can, I think we can become the most important oceanographic center in this country in ten years.

March 29, 1961

Submission of interview travel expenses by John Knauss:

The following is a listing of the expenses I incurred in conjunction with my trip to the University of Rhode Island, March 23–24, 1961.

San Diego to Providence	\$166.32
Providence to Boston	\$3.71
Boston to San Diego	\$160.11
Taxis	\$4.00
Food	\$1.00
Total	\$335.14

April 3, 1961

Ernest Hartung to John Knauss

I have spoken at length with Fran Horn both about your ideas on a vessel and most particularly about the matter of adequate land on the bay. He has given me to understand that the University definitely has an option on 20 additional acres adjacent to the present plot, so I expect that with the proper urging at

the right time and place, the present acreage could be doubled without too much trouble. He also feels we should, in addition, try hard to get the old mine depot on Jamestown for whatever it may be worth.

April 24, 1961

Francis H. Horn, President, University of Rhode Island, to John Knauss

This will confirm my telephone conversation offering you the position here as Dean of our new Graduate School of Oceanography effective February 1, 1962. The salary will be \$13,000 a year, on a calendar year basis; this provides one month of vacation.

We are interested in having you come here because we are impressed not only with your scientific knowledge, your reputation, and your potential as an administrator, but because of your vision of what we can develop here by way of a major oceanographic research institution. We have indicated to you that we will wish to expand our activities into the open ocean, which is where your major interest lies; on the other hand, we must emphasize once again, that as a state institution we have an obligation to serve the particular interests connected with our own coastal waters. You have indicated in your conversation with me that you are aware of this and that you expect the program to be strengthened in all areas of its interests.

April 27, 1961

John Knauss to President Francis Horn

I am very pleased to accept the position of Dean of the Graduate School of Oceanography under the terms outlined in your letter of April 24.

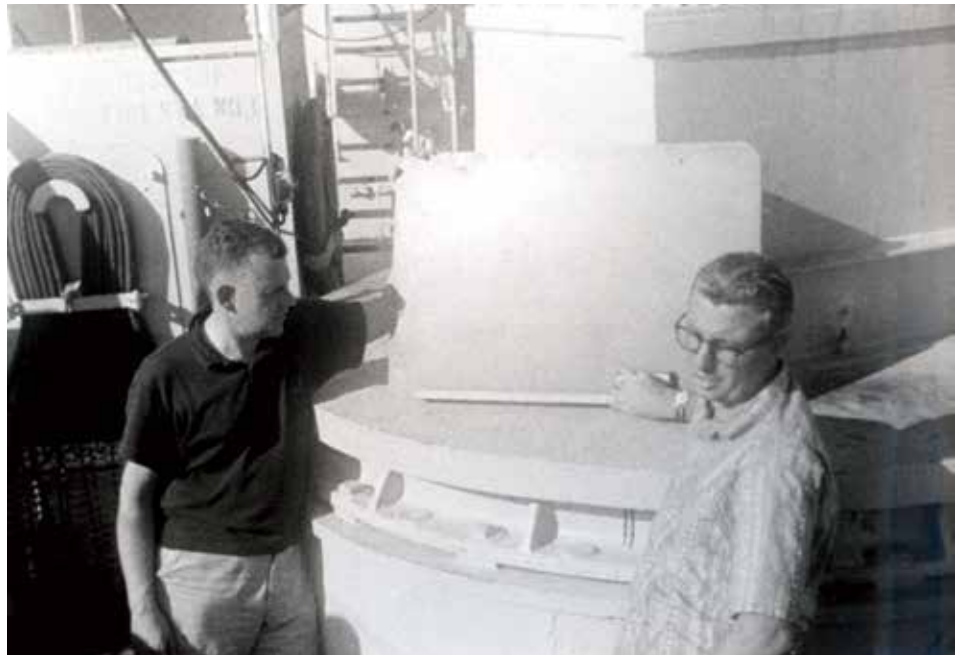
I realize that in conversations with you and other members of the University I repeatedly emphasized my ideas on building the Narragansett Marine Laboratory into a major oceanographic institution. One reason for doing this was because I was aware that what I was proposing was going to result in some major changes in the policy of the Laboratory. However, it was not my intention to give anyone cause for alarm in suggesting that "open ocean" work should be done to the exclusion of all else. There are many important problems concerned with coastal and estuarine waters, and in a state which appears to be roughly thirty percent sea water, I know that these problems are not only of scientific importance, but that they are often of economic importance as well. I want to assure you that I will do what I can to strengthen the work of the Laboratory in local waters also. 🏹

Making his Mark

WALTER MUNK

RESEARCH PROFESSOR OF
GEOPHYSICS, EMERITUS
SCRIPPS INSTITUTION OF
OCEANOGRAPHY,
UNIVERSITY OF CALIFORNIA
SAN DIEGO

Contemporary and fellow oceanographer



I was glad to learn that John is being honored for his many contributions to oceanography.

John's dissertation on the Pacific Equatorial Countercurrent (Cromwell Current) is among the best of Ph.D. dissertations in our 113 years. The current was discovered by Scripps student Townsend Cromwell (who lost his life in a plane crash on his way to join the Scripps vessel). John derived a simple dynamic description of this singular feature in 1959.

Scripps Director Roger Revelle was John's thesis advisor and participated in some of the field program. We all participated in these exciting discoveries.

Knauss reported a remarkable instability in the transport of the current, from 60 Sverdrups to essentially zero transport. Today, 50 years later, with much improved instrumentation, these results have

Today, fifty years later, with much improved instrumentation, these results have been confirmed.

been confirmed.

Soon after completing his dissertation, John became a very young founding Dean of the URI

Graduate School of Oceanography. The new job took all of John's attention until two developments took place that transformed oceanography in the U.S.—the Sea Grant Program in 1966 and the Stratton Commission, which led to the formation of National Oceanic and Atmospheric Administration. I served with John on the steps leading to NOAA.

Some years later John became Administrator of NOAA for four

years (1989-1993) and a few years later he served as the President of the American Geophysical Union. These are the leading government and

civilian positions in oceanography. John was a most effective leader.

I was happy to learn that the University of Rhode Island has chosen to honor John for his outstanding services. 🎀

Knauss continued his active research early during his tenure as GSO's dean through his participation in the International Indian Ocean Expedition aboard the R/V *Argo* with Henry Stommel (left) and other colleagues.



Read Knauss' paper, "The Structure of the Pacific Equatorial Countercurrent." <http://gso.uri.edu/knauss>

John, Revelle, and the Albatross

ARTHUR MAXWELL

PROFESSOR EMERITUS, DEPARTMENT OF GEOLOGICAL SCIENCES,
JACKSON SCHOOL OF GEOSCIENCES, TEXAS A&M UNIVERSITY

Contemporary and fellow oceanographer

John Knauss and I were colleagues and good friends for over six decades. We had remarkably similar lives. Both of us were born in 1925 and served in the U.S. Navy during World War II. We each majored in physics in college, before becoming interested in oceanography. We both worked in the Office of Naval Research (ONR) and were students together at the Scripps Institution of Oceanography. We were active in the American Geophysical Union (AGU), each having served as president of the Oceanography Section as well as president of AGU. Eventually, we became interested in national and international affairs having to do with the oceans. Of course, most of these events occurred without the knowledge of the other. Our paths often crossed, and we always enjoyed our interactions, though sometimes competitively. Gordon Lill, who was head of the Geophysics Branch in ONR and Roger Revelle of Scripps were major influences in our lives.

John and I first became acquainted when we attended Scripps during the 1950s, taking the normal time of about a decade to complete our Ph.D.s. Roger Revelle was mentor to both of us. A divergence of our careers began when John went into the study of physical oceanography, while I opted for marine geophysics. John established his bona fides as a scientist with his research on the Pacific Equatorial Undercurrent. In addition to a successful life of contributing to science, he put his prodigious capabilities toward solving both national and international problems related to the seas. As a giant in the field of oceanography, John has made major contributions in these areas, far too numerous for me to cite here. However, in my opinion, by far his greatest contribution was to take a fledgling oceanographic program at the University of Rhode Island and trans-

(John) put his prodigious capabilities toward solving both national and international problems related to the seas.

form it into the Graduate School of Oceanography, of which he was its founding Dean. It has become one of the leading oceanographic institutions in the U.S.

It was at a dinner at Gordon Lill's house in Washington, DC, that the three of us—Lill, Knauss, and Maxwell—noted that oceanographers had no award similar to the Nobel Prizes. To correct this inequity, we thought the American Miscellaneous Society, which had been founded in ONR in the 1950s, should establish an award for oceanographers. The American Miscellaneous Society was based on

the principle, “to look at the lighter side of heavier problems.” Consequently, the award should reflect on more than scientific contributions, including, of course, the factor of humor. Since the American Miscellaneous Society was democratic to the extent that every member was a founder and that any two members constituted a quorum to conduct business, it seemed natural the award should be structured in a way that the recipient be selected by its peers, namely previous awardees. Of course there were no previous awardees, so we took it upon ourselves to name the first. Realizing that the three of us were unlikely to ever receive the award, we decided to give the first award to ourselves for having conceived it. Naming it the “Albatross Award,” we decided Walter Munk should be the second recipient. So a tradition was established, and The Albatross has been awarded numerous times to many illustrious individuals. The list of awardees and their citations is a tribute to the originators’ idea of injecting some respect and humor into our community.

Although we enjoyed each other's company many times, two occasions are worth noting. The first was at a conference at a resort on Molokai, Hawaii. One afternoon after a rather tedious session, we decided to take a walk along the beach. After a half-mile or so, we opted for a swim. We weren't in the water long before we noticed we were about a hundred yards from shore and moving seaward at a rapid rate. John turned to me and said we were obviously in a rip current. He continued saying, what we learned at Scripps was not to fight it, but swim parallel to the shore.

Following his advice, we eventually returned to the beach without incident.

A second occasion occurred after his retirement when he had homes in both LaJolla, California, and Saunderstown, Rhode Island. At the time, he was spending summers in Rhode Island and winters in California. He decided to have a reunion at this LaJolla home for all the graduates of Scripps who received their degrees when Scripps was part of UCLA. It was a gala affair enjoyed by all, many who had not seen one another in decades. I think this was John's way of saying farewell to an era in his life on the west coast before he moved permanently to Rhode Island.

We kept in touch to the end, always exchanging Christmas cards, though he intentionally sent his in April rather than at Christmas. My last visit with him was at his home in Saunderstown a few years ago. At the time he was vigorous and upbeat, having just returned from a game of tennis. Little did I know that that was to be our last goodbye. 🦋



Edward Crisp Bullard (right) presented with the Albatross Award by its previous recipient Roger Revelle (left), in Edinburgh, Scotland, in 1976 at the Joint Oceanographic Assembly. This award of the American Miscellaneous Society was given to Bullard “for unintelligible geomagnetism.” Circa 1976. Photo by Ursula Bullard.

Early Years with John Knauss

D. JAMES BAKER

SENIOR STRATEGIC ADVISOR, CLINTON FOUNDATION

John Knauss' first postdoctoral fellow and his successor as NOAA Administrator



Knauss with D. James Baker.

What intrigued me the most was seeing John and his colleagues sitting out with a large globe charting out next year's plans.

John finished his Ph.D. at Scripps in 1959, using his pioneering measurements of the Cromwell Current in the Pacific—now known as the Equatorial Undercurrent—as his thesis, and then turned to understanding the North Equatorial Current. At the same time, I was in graduate school in physics at Cornell. One wintry Ithaca day my roommate said that his brother was going to the South Seas for the summer. That sounded like fun, so I wrote to Scripps and ended up on one of John's expeditions.

Our "Dorado" cruise went south from San Diego in the summer of 1960 to test various instruments and make some measurements of the North Equatorial Current. John had used the *Horizon* for many of his previous expeditions including the famous "Dolphin" cruise where he first measured the Pacific undercurrent. The *Horizon* was a sea-going tug, a workhorse of the Scripps fleet, about 130 feet long, which to my landlubbing legs and stomach seemed to bounce around a lot. In fact we did go through one big storm—all the fish in the aquarium died from the ship's lurching and the water splashing out. I ventured out on the fantail one night after the storm and looked up to see the stars all disappear. It was a huge wave that loomed over us that then came crashing down, washing us all with warm tropical water. John and his experienced shipmates didn't seem fazed, so I felt like a true adventurer at sea.

What intrigued me the most was seeing John and his colleagues sitting out with a large globe charting out next year's plans. This seemed wonderfully exotic to me, being out at sea and plotting global expeditions with delightful names like "Capricorn," or "Downwind," or "Nova." I asked John how I could become an oceanographer. He said I should first finish my doctorate. In June 1962 with a new Ph.D. in atomic spectroscopy, having measured the x-ray absorption spectrum of helium and lithium but not relishing the idea of working my way

A RECORD OF LEADERSHIP

January 21, 1994

A statement from Senator Claiborne Pell about John Knauss on the occasion of the conclusion of his service to the National Advisory Committee on Oceans and Atmosphere

Mr. President, today Dr. John A. Knauss steps down as chairman of the National Advisory Committee on Oceans and Atmosphere, concluding an extended term of exceptional service to the Congress and to the Nation. The National Advisory Committee on Oceans and Atmosphere (NACOA) is charged with the responsibility of providing expert advice to the Congress and to the President on programs and policies to promote our knowledge, wise use, and stewardship of ocean and atmospheric resources and environment. John Knauss has provided leadership for NACOA for a longer period than any person in the history of the Advisory Committee, and under his leadership NACOA has compiled an exceptional and productive record of carefully researched policy guidance and recommendations for the consideration of the Executive Branch and the Congress.

I am proud to claim John Knauss both as a Rhode Islander and a friend. John, as Dean of the Graduate School of Oceanography at the University of Rhode Island and later as the Provost and Vice President for Marine Affairs at URI, has been primarily responsible for the development of URI as one of the Nation's leading oceanographic institutions.



Senator Claiborne Pell with Knauss.

through the periodic table, I remembered John's offer and wrote to him.

He answered that he had just taken a job as the new dean of a marine department at the University of Rhode Island and would be spending the year searching for equatorial undercurrents in the Indian Ocean with his student Bruce Taft as part of the International Indian Ocean Expedition. He could arrange for a postdoc for me. If I were interested then he would arrange for me to fly to meet him and his colleagues in Singapore. This sounded exciting, simply too good to pass up. I became John's first postdoctoral fellow.

I boarded a Military Air Transport Service plane at Travis Air Force Base near San Francisco and we hopped across the Pacific stopping at Hawaii, Wake, Guam, Manila, Saigon, and then Singapore. I joined the R/V *Argo* there for the first of six, month-long expedition legs back and forth across the Indian Ocean with John, Bruce, and a host of other oceanographers.

In the Pacific Ocean along the equator the surface winds blow from the east all year round, helping to set up the differences of pressure that drive the surface and undercurrents. But exactly how that worked was not clear at the time. In John's words, "Here was a current, a big, powerful current that nobody had ever known about before, and it was right on the equator. It knew where the equator was. Nobody had a clue in the beginning as to why it should be there, or how it was there. And when I first reported these observations I didn't have a clue, either, about why it should be there."

The goal that John and Bruce had set for the Indian Ocean work was to find out what would happen to an equatorial undercurrent in a different context, namely in the Indian Ocean, where the winds reverse with the monsoon seasons. At first, the measurements didn't show any undercurrent, but in the end, they showed that the reversing winds lead to an undercurrent that only appears during part of the year, and exhibits great variability. This knowledge was helpful in understanding these undercurrents in other parts of the ocean.

Overall, the International Indian Ocean Expedition brought many other new results in physical, chemical, biological, and geological oceanography of the region. One of the key reasons was that, thanks to the vision of John, Bruce, and their colleagues, it was one of the first of

the modern expeditions that was targeted toward specific oceanographic processes as opposed to simply doing a predetermined network of stations. Bruce and I later joined the faculty at the University of Washington and I eventually became the founding dean of the College of Ocean and Fishery Sciences. So I followed John as a first dean of a new marine college.

But that's not the only time I followed John. He became administrator of NOAA in 1989 in the George H.W. Bush Administration and we were in contact while I was President of Joint Oceanographic Institutions (later Consortium for Ocean Research and Education, then the Consortium for Ocean Leadership). When Bill Clinton won the election of 1992, politics dictated that there would be a change at NOAA. I succeeded John as NOAA Administrator, following him again. John and I consulted on a number of issues at that time and later including the many messy issues of whaling—we both held the position of U.S. Representative on the International Whaling Commission.

John's coming to URI was not just a single isolated event, but in fact part of an overall diaspora from Scripps that was encouraged by Roger Revelle and other members of the Scripps faculty. Before John joined URI, Scripps graduates Dick Fleming had moved to the University of Washington, Wayne Burt to Oregon State, and Bob Reid to Texas A&M University. All developed new ocean-going capacity for their departments. Roger encouraged John to join the group and establish an ocean-going program at URI. This diaspora from Scripps built U.S. oceanography to the state of strength that it enjoys today. 🦋

KNAUSS FELLOWS CARRY ON THE LEGACY

In 1979, the National Sea Grant Office initiated the Sea Grant Intern Program, allowing outstanding graduate students who have an interest in ocean, coastal, and Great Lakes resources, and in the national policy decisions affecting those resources, to spend one year in Washington, DC. These interns develop the skills needed for active leadership in both policy development and research in coastal and ocean sciences. At first, the program provided an educational experience in the policies and processes of the legislative branch of the Federal Government. Later, the program was expanded to provide opportunities within the executive branch of the Federal Government in the Washington, DC, area. The program matches highly qualified graduate students with "hosts" in the legislative and executive branches of government for a one year paid fellowship.



Catalina Martinez, Rhode Island Regional Program Manager of NOAA's Office of Ocean Exploration & Research, was a 2002 Knauss Executive Fellow.

Meet GSO's Knauss Fellows
<http://gso.uri.edu/knauss>

In 1987, the Sea Grant Intern Program was renamed the Dean John A. Knauss Marine Policy Fellowship to honor one of the founding fathers of Sea Grant and former NOAA Administrator.

Over the 37 years of the Knauss Fellowship program, 17 GSO graduates have participated in this unique experience.

When John Knauss was New at GSO

CANDACE OVIATT

RESEARCH PROFESSOR OF OCEANOGRAPHY, UNIVERSITY OF RHODE ISLAND
GSO alumna and GSO faculty member

I remember when John Knauss first arrived at GSO and he was at the student seminar. We few graduate students peered at him for the first time and wondered. He sat slouched, looking sleepy, and then asked laser-like questions.

Because he was new, John Knauss became a member of my graduate committee. As a member of my committee he suggested I study the neurophysiology of starfish, which I was not inclined to do because I wanted to study the ocean, not some detail about nerve transmission in an invertebrate. He participated in the cruise where I lost my gear. As I recall he shook his head and asked who helped with the design of the gear, but then gave me a very strong drink.

I took his class on ocean water masses with two or three other students including Redwood Wright. It was a new learning experience and just the sort of oceanography big picture that I wanted to learn. Redwood was deftly excellent in quantitatively defining water masses just the way the Dean wanted.

Later after I had graduated, Scott Nixon and I had an office-laboratory in the Fish Building where the Dean's office was also located. I remember Bill Macy euthanizing eels with snuff



Knauss directs a group of researchers aboard the R/V Trident.

(nicotine) when one of the physical oceanographers, Tony Sturges, walked in to find eels shooting like fireworks out of a barrel.

Whenever John Knauss received one of those strange phone calls about what someone found on the beach, he would forward the message for me to answer. I would be ignoring the request when he would walk in and ask how I had replied.

Proposals that I submitted went to the Dean for his signature. Mine would come back with a correction many pages in that I had not seen before submitting. I remember submitting that correction to NSF after the deadline because he asked how I had dealt



Aboard the R/V Trident, 1964, with John Knauss, right, and Candace Oviatt, center.

with it. I remember another proposal where I was using multivariate statistics to describe system behavior and John asked my former advisor Saul Saila, "What in the world was I doing?" Saul had not seen the proposal and had no idea what John was talking about and asked me in turn.

I never believed that Knauss thought I was science material. However, he invited me out to dinner one night and I had no idea that it was actually an interview. We talked freely about whatever came across my mind, and I thought he did too. Next I knew I was promoted to Marine Scientist and knew then that I had a career in oceanography. 🎀

Riding in His Wake

JIM YODER

VICE PRESIDENT FOR ACADEMIC PROGRAMS AND DEAN, WOODS HOLE OCEANOGRAPHIC INSTITUTION
GSO alumnus and former GSO faculty member, Associate Dean, and Interim Dean

I was among the fortunate to be a GSO graduate student when John Knauss was Dean. We knew that he was an accomplished and important figure in ocean sciences and were proud to be students at the institution he founded.

At one of the events celebrating Dean Knauss's 75th birthday, Margaret Leinen summarized his many accomplishments when she referred to him as the "Forrest Gump of oceanography." Much as Gump was portrayed as being present at so many historical events, Dean Knauss was a participant at most of those that built modern oceanography. My short article, however, attests to a more personal side to Dean Knauss that had a big effect on me and others of my generation.

In many ways, Dean Knauss showed that he valued GSO students. In reality, we may have been "just another brick in the wall," as the Pink Floyd song goes, but Dean Knauss made it clear that the wall was important, and we bricks were important too. As I recall, he attended every weekly student seminar when he was in town. He always sat in the front row, paid close attention to the speaker and almost always asked a question; generally a tough question. Dean Knauss routinely ate lunch in the North Lab (Mosby Center) and would often sit at a table with graduate students. Although this sounds like a small gesture, it had a big impact on us. It was a clear demonstration that he valued the GSO students and our opinions. It helped build our confidence, and make us believe that there was a place for us in oceanography too.

During my final year as a GSO student, I was offered and accepted a job at a small oceanographic lab in Georgia. I wanted some career advice from the Dean, and it never crossed my mind that he wouldn't find the time to meet with me. The appointment was of course scheduled, and within a couple of days. I don't recall the whole conversation other than Dean Knauss was sincerely engaged and shared advice on a number of topics. I do recall that I asked him if my new institution could some day operate a ship like *Endeavor*. As I subsequently learned, that was a naïve question. However, Dean Knauss answered it very seriously and respectfully with an answer along the lines that small institutions would likely not operate ships the size of *Endeavor* in the future. The main point, of course, is that the Dean took the time to meet with me and treated me as a new member of the ocean research community.

In 2006, Dean Knauss was awarded the American Geophysical Union's Waldo Smith Medal, a major award. At the time, medal recipients gave an acceptance speech during a special session of the fall AGU meeting in San Francisco—a session I attended. During the session, I heard a few speeches from others receiving major awards of which the



Former GSO deans Robert Duce, David Farmer, Margaret Leinen, and Jim Yoder pose with Knauss at the 2011 celebration of GSO's 50th anniversary.

general theme was, "I didn't know I was so accomplished, but I guess I am." Then Dean Knauss spoke. His talk was different. He said very little about himself, but rather spoke about Waldo Smith's achievements and how well Smith promoted geophysics and AGU. To me, it was a powerful message and another lesson learned from John Knauss. Our individual accomplishments may be important, but they are in the context of many contributions of those who have come before.

Rick Spinrad wrote the Citation for the Smith medal published in *EOS* a month later (16 January 2007), which highlighted Dean Knauss's accomplishments. Rick finished his remarks with, "...Knauss has exemplified the elements of unique leadership and extraordinary service." As for his medal acceptance speech at the AGU meeting, Dean Knauss focused his short written response entirely on how much Waldo Smith contributed to AGU and how much time he spent doing so. Knauss

finished his comments with, "...but to this young man watching him [Smith] in action at the time, it was not obvious [that Smith had time for interests outside of AGU]."

John Knauss had many accomplishments. He also had the rare ability to lead by example and help bring many of us along with him—much the way smaller ships will fall in line in the wake of a big one. As a young man starting a career, I strove to ride that wake. 🦋



Knauss shares stories with members of the GSO community on the Mosby Center deck.

A Hard Act to Follow

ROBERT DUCE

UNIVERSITY DISTINGUISHED PROFESSOR EMERITUS,
DEPARTMENTS OF OCEANOGRAPHY AND ATMOSPHERIC SCIENCES
TEXAS A&M UNIVERSITY

Former GSO faculty member and successor to John Knauss as GSO's Dean

John banned departments within the Graduate School of Oceanography. He knew these artificial boundaries could be great barriers to collegiality, to collaboration, to cooperation, and to true interdisciplinary efforts.

Having been on the GSO faculty for 22 years, most of it while John Knauss was Dean, I find writing about John in only a few hundred words nearly impossible. As an oceanographer, as an administrator, and as the soul of GSO, John needs a book to recount his accomplishments and impacts.

One of his greatest attributes was that he seldom bothered his faculty with administrative trivia; he wanted us to be successful as teachers and researchers, so he did everything he could to make that possible. From GSO's inception, John banned departments within the Graduate School of Oceanography. He knew these artificial boundaries could be great barriers to collegiality, to collaboration, to cooperation, and to true interdisciplinary efforts. He gave his faculty the freedom to do their jobs. Throughout his career as Dean, John protected us from the daily trials and tribulations of maintaining a largely independent campus and from coping with the upper university administration. As Dale Krause once pointed out, "His approach was to provide opportunity and resources, which then became our responsibility to take advantage of. His approach was low-key, noncontroversial, yet decisive." That sums it up very well.

John loved to teach and interact with students. For most of his tenure as Dean he continued teaching the core course in physical oceanography, which all students had to take. John rarely missed a Monday afternoon student seminar. His insightful and penetrating questions from the front row, even when one might think he was dozing, kept many graduate students from sleeping the night before their seminars.

When it finally sank in to the faculty that John was really going to retire as Dean, they organized a special dinner in Newport for John and Lynne, his wife. You can imagine John's surprise and pleasure when he arrived and found the entire faculty waiting for him, all wearing bow ties. That gesture sent a clear message to John about how much his faculty appreciated and respected him and all he had done for them and for GSO.

When I had the great honor, but unenviable and terrifying task, of succeeding John as Dean of GSO, he told me he would never second-guess any decision that I made. And he never did, although I know there were many times when he would have been very justified in doing so. He was an outstanding role model as a scientist, administrator, teacher, colleague, and friend. GSO, its faculty and students, and I personally, will always be in his debt. 🎩



Knauss offers some words during his final meeting with GSO faculty members prior to his retirement.

Dean John Knauss left a lasting legacy to the University of Rhode Island and to Rhode Island with his leadership that made the Graduate School of Oceanography an international leader in ocean sciences. His commitment to marine education and research is an exemplary model for all those who care about the world's oceans. His legacy and commitment serve as central themes for GSO as it plans and prepares for moving into the next half century.

– URI Provost Donald DeHayes

A Good Man in a Storm

JUDITH SWIFT

PROFESSOR OF COMMUNICATIONS STUDIES
AND DIRECTOR OF THE COASTAL INSTITUTE, UNIVERSITY OF RHODE ISLAND

In the winter of 1980 I was directing a show Off-Broadway and was buried in technical rehearsals—adding in light and sound cues, costumes, and special effects—when I received a somewhat panicked phone call from a colleague in the Theatre Department. Frank Newman, then URI President, had decided to put the department on the chopping block. His argument: it was expensive to run and served a small number of majors. How to save the day? Well, let's be honest. Pleas of outrage over the value of the arts have rarely turned the tide, but the metaphor sure did. I decided that the only way to challenge the president was to win the support of the most influential person at URI, Dean of GSO John Knauss.

I was scheduled to direct a URI show that spring, so I went to RI Sea Grant Director Scott Nixon to persuade him of the value of investing in theatre. I told Scott that I had a swell idea, which was to develop a full-fledged musical à la Busby Berkley that would focus on oceanographic science. Scott was skeptical but he loved innovation and a grant was forthcoming. I walked out of his office considering my potentially Pyrrhic victory. What a chemistry—artists singing and dancing science. We had three months with no script, lyrics, or score. My theatre colleagues were unaware of my idea and were looking forward to a production of “Our Town,” not “Our Ocean.” John Knauss had no idea that I was on a crusade to win his salty heart.

I quickly recruited two genius creative types to work with me: Brian Jones, a Rhode Island School of Design trained illustrator-cum-tap dancer, and Charles Cofone, a classically trained harpsichordist with a specialty in early English keyboard music. The theatre students were promised a chance to perform material if they carefully researched it, came up with a concept, and gave the forming of scenes or songs a try. This was pre-Google and research meant a walk to the library. Suffice it to say that a fish dangling in front of a seal was an apt image for what happened to the students. They became inspired researchers excited about manganese nodules, starfish regeneration, seahorse reproduction and parenting, and coral reefs. Charles, Brian, and I worked late into many nights fashioning a show. In just a couple of months, we were in full-blown rehearsal with gorgeous and outlandish

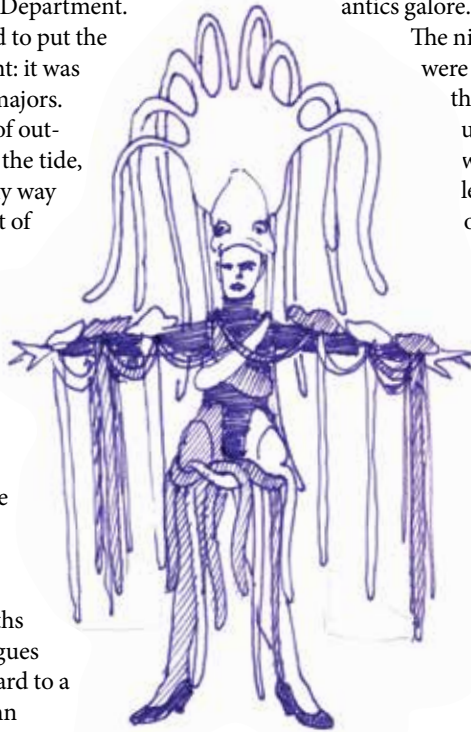
costumes, a balletic number about the phenomenon of fish schooling with black-lit fish puppets, and a showgirl number, the Seven Beauties of the Seven Seas. *Oceantics* was the title and there were antics galore.

The night reserved for GSO's viewing arrived and we were on tenterhooks. We needn't have worried. When the lights came up in the Clams Casino on an underwater spectacular, the oceanographers were, well, hooked. And John Knauss took the lead with wild applause and laughter. It turned out that he was once an aspiring playwright and remained a major theatre buff. He sent me a gracious note saying that the faculty vote in support and favor of *Oceantics* and the Theatre Department was the first ever unanimous vote at GSO... and likely to be the last. Frank Newman backed off with even a tad of humor, Scott Nixon became a friend for life, the department was given a reprieve, its students had a new respect for science, and audiences loved the show, resulting in many phone calls asking for more information about a wide-range of ocean topics. Frank Newman graciously acknowledged my political savvy. Most importantly, John Knauss showed himself yet again to be the visionary behind the interdisciplinary world of oceanography.

As noted in excerpts from an oral interview of John Knauss by Laura Harkewicz in November 2005: “I really was going to be a liberal arts major, and when I went to Michigan to get my master's degree in physics I spent two years getting a master's degree without a master's thesis... I spent a lot of time taking courses in liberal arts and English, and so forth, and I actually got involved in a playwriting course and got an honorable mention in a big national program that they had for that.”

Mary Ritter, wife of the first director of the Scripps Institution of Oceanography, mentions in her diaries that plays were read and performed in the old Community House on the campus of the Scripps during the early decades of the twentieth century.

She and others organized a playreaders group, which produced a reading of the expedition farce *Endless Holiday* written by Knauss in 1952. Dean Knauss' play was also read at the Scripps Centennial in 2003. 🏴‍☠️



A Voice for Marine Science in a Sea of Diplomats

DENNIS NIXON

PROFESSOR OF MARINE AFFAIRS
AND DIRECTOR OF RHODE ISLAND
SEA GRANT PROGRAM,
UNIVERSITY OF RHODE ISLAND



Knauss, joined by Athelstan Spilhaus (left), Senator Claiborne Pell (signing), and Congressman Paul Rogers (right) at the 20th Anniversary celebration of the founding of the National Sea Grant College Program, 1986.

I first met John Knauss when I was a graduate student working at the Coastal Resources Center in 1975. His hand was felt in every office on campus, along with a rather firm expectation that excellence was expected of anyone who had the privilege of working on the Narragansett Bay Campus. When I moved to Kingston the following year to begin my career as a faculty member in marine affairs, I officially became part of the College of Arts and Sciences, but unofficially continued to look to Dean Knauss for inspiration and guidance. At one point early in my career, he asked to see a reprint of something I had written that had received some attention. I nervously complied, but was thrilled when a short time later I received a handwritten note from John complimenting me on the work. It meant enough to me as a junior faculty member that I still remember the moment more than three decades later.

At GSO, John was recognized for his scholarly work as a physical oceanographer. But in marine affairs, John was known as the champion for marine science during the decade-long process that produced the Law of the Sea Treaty. He was the voice of marine science in a sea of diplomats, as he struggled with the “consent regime” that would make it more difficult for conducting marine science research within 200 miles of any nation’s coast. He is certainly one of a very few oceanographers with numerous publications in

John was known as the champion for marine science during the decade-long process that produced the Law of the Sea Treaty.

journals of international law. He was one of the founders of the Law of the Sea Institute, which was based for more than a decade at URI. Also a member of the presidentially-appointed Stratton Commission, he helped produce the landmark publication *Our Nation and the Sea* that laid the groundwork for the formation of NOAA. At the same time, it called for creation of graduate programs in marine affairs.

John was the first to make that happen when he worked with Professor Lewis Alexander to start the Marine Affairs Program at URI in 1971.

When John left GSO to become NOAA Administrator, we were fortunate that he kept his home in Saunderstown and would return here for frequent visits. I was quick to have him appointed as an Adjunct Professor in Marine Affairs, and could count on him for an annual lecture in my Marine Affairs Seminar. At dinner before class one evening, I kidded him that it must be exciting to have

his own air force and navy at NOAA, launching weather satellites, diving to great depths in the ocean, etc. He smiled wryly and said as good as that sounded, he had a lot more freedom to do good things when he was Dean at GSO. While at NOAA, before he could testify before Congress, all of his remarks had to be approved by the Office of Management and Budget. If a reorganization meant closing a lab or relocating a ship’s home port, he knew he would be called back to the Hill to justify his actions. It was an interesting lesson for me that the apparently more powerful position actually presented more constraints than operating a college campus with all the bureaucracy that entails. But John seemed to enjoy every challenge he faced, and remains an inspiration for all who had the opportunity to work with him. 🎀

Knauss' NOAA Legacy

CRAIG MCLEAN

ASSISTANT ADMINISTRATOR FOR RESEARCH,
NOAA OFFICE OF OCEANIC AND ATMOSPHERIC ADMINISTRATION



With the mind of a creative scientist, he could routinely render a striking vision, and transfer that into a reality through this understanding of government and his ability to work with elected officials and to convince others through the use of his remarkable professional credibility.

Each day I walk past a corridor in NOAA's headquarters building in which I work. It leads to the National Sea Grant Program Office. I marvel at the nature of the program, nimble and responsive to the needs of the coastal community. It is among the most accomplished in generating results for the American people of the coast. Sea Grant is celebrating its 50th anniversary this year and has for each of those years delivered solutions and resilience for coastal ecosystems, coastal economies, and coastal communities. Along this walk, I pass the offices and desks of current and former John A. Knauss Sea Grant Fellows, one of whom is currently the nineteenth Sea Grant Fellow I have hosted, Elizabeth Lewis, an attorney. John Knauss made all this possible.

Today, I hold the responsibility of managing many of the gifts that Dr. Knauss endowed to the nation as these programs are housed in my management portfolio in NOAA. These include the Sea Grant program which generates \$320 million in economic prosperity, or, a 475% return on a federal investment of \$67.3 million. This leveraged

outcome was his vision. As NOAA Administrator he also oversaw the creation of many of the foundational programs that over many years have revealed our understanding of global climate, such as the Climate and Global Change Program, later named the Office of Global Programs, and today the NOAA Climate Program Office. He presided over the formation of the Climate Monitoring and Diagnostics Laboratory, which is now part of our Global Monitoring Division in NOAA's Earth System Research Laboratory in Boulder, Colorado. This laboratory is the backbone of global greenhouse gas monitoring, having constructed a data record from samples routinely collected all over the world. That record is a foundational underpinning of scientific

understanding of the present and past atmosphere, the importance of which Dr. Knauss understood at the time of the laboratory's creation.

With the mind of a creative scientist,

he could routinely render a striking vision, and transfer that into a reality through his understanding of government and his ability to work with elected officials and to convince others through the use of his remarkable professional credibility.

On a shelf in my office is an original copy of *Our Nation and the Sea: A Plan for National Action*. This is also known as the Stratton Commission Report, and Dr. Knauss brought the voice of academic oceanography to that body. Of course, that report gave rise to the creation of NOAA, the agency I served in uniform for nearly 25 years, and serve now as a civilian. He also contributed to the U.S. position on negotiations to the U.N. Convention on the Law of the Sea, and protected the freedom of research on the high seas. Today this is an important consideration as the world deliberates on areas beyond national jurisdiction, a subject before the Intergovernmental Oceanographic Commission, where today I lead the U.S. delegation. In so many ways, John Knauss is the foundation of what I do today.

I knew Dr. Knauss during the time he served as the NOAA Administrator. That was during my journeyman years in the NOAA Corps when I held the rank of Lieutenant and Lieutenant Commander, which should imply that Dr. Knauss would have had little cause to know or remember who I was. But after one important meeting with him, he did, and always, found a way to recognize me. I hold that memory with pride, as I hold my responsibility to safeguard his legacy in his many contributions to NOAA. I owe him my very best. 🎩

Dr. John Knauss was a tremendous, forward-thinking leader who broadened the world's understanding of the complexity and importance of the oceans. His vision inspired and created the national oceanographic programs, legislation, and policies that still guide us today. The University of Rhode Island's renowned Graduate School of Oceanography is just one of his many legacies for which our students, alumni, and the entire University are very thankful.

— URI President David Dooley

The Definitive Answer

RICK SPINRAD

CHIEF SCIENTIST, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



The room went silent, and there was no further discussion. I'd never seen a scientific debate terminated so abruptly and unequivocally.



High school teams from throughout the U.S., like this 2003 national championship team and their coach representing Cranston West, Rhode Island, compete in the annual National Ocean Sciences Bowl.

The year was 1997, and the Consortium for Oceanographic Research and Education (CORE) was in the midst of setting up the first-ever National Ocean Sciences Bowl for America's high-performing high school students. CORE's President, the formidable Admiral James D. Watkins, had asked me to establish a team of experts to review the questions being considered for inclusion in this competition. We knew the scrutiny would be tough, so we wanted as stellar a group as possible. Having known John Knauss from his days at URI and NOAA, I gave him a call and asked if he'd like to serve on this group. I suspected he thought it might be different and entertaining. Anyway, I was a bit surprised when he eagerly agreed to serve on the review team.

The team met for a full day and reviewed about 1,000 questions on ocean science, technology, and policy. While the group included many other esteemed members of the oceanographic community, John was clearly the most senior and most experienced of the group. That fact, however, didn't keep the rest of the group from challenging him and each other on their knowledge of the field. All was going well until one question came up regarding the Cromwell Current in the Pacific Ocean. There were several multiple choice answers being vetted, and nobody was in agreement about which answer was the best. John tried several times, in his measured and calmly stated manner, to advocate for acceptance of one particular answer. As the discussion persisted, with no apparent conclusion, John got progressively more forceful. After a good ten minutes of bantering, John finally could take it no longer and announced loudly, and with full conviction, which was the correct answer, punctuating his outburst with the statement that, "This is the right answer, and I know that because I discovered the Cromwell Current!" The room went silent, and there was no further discussion. I'd never seen a scientific debate terminated so abruptly and unequivocally. John, not being one to gloat, then simply asked, "What's the next question?" That's a memory I never want to forget! 🎀

An Exemplary Mentor

MARGARET LEINEN

VICE CHANCELLOR FOR MARINE SCIENCES, DIRECTOR OF SCRIPPS INSTITUTION
OF OCEANOGRAPHY, AND DEAN OF THE SCHOOL OF MARINE SCIENCES,
UNIVERSITY OF CALIFORNIA SAN DIEGO

GSO alumna and former GSO faculty member, Associate Dean, and Dean



Robert Duce, John Knauss, David Farmer, Jim Yoder, and Margeret Leinen at the AGU dinner honoring Knauss for his receipt of the Waldo Smith Medal.

When I arrived at GSO in 1975 I didn't know of the legendary John Knauss. But I met him within a week because John ALWAYS attended the weekly Student Seminar at which a student from each discipline reported on their research. And, should no one ask a question of one of the students, John always had one. I soon came to know that this genial dean, always slouched in his seat, often staring up at the ceiling as the students spoke, always wearing a bow tie, was one of the most respected of the U.S. oceanography deans. John Farrington calls him the "Dean of Deans."

I had the privilege of getting to know John well. The relationship we developed over the 25 years that I was at GSO began when I was a student, continued when I was a researcher, a faculty member, Associate Dean, and Dean. Through each position John was my mentor. No one ever had a more generous one—or one with more direct advice.

I wondered how John could possibly recognize all of the 250 or so graduate students. I found when I moved into his office that he had 'cheat sheets' of student photos printed up by Ted Napora and that Anne Barrington would quiz him regularly. Any student could schedule a meeting with John, though few did. Among the fascinating stories I heard from him was how Senator Claiborne Pell became interested in oceanography as a result of bringing his son Toby to GSO on a Sunday to look around. They found John at work in his office and started talking about the needs for research. John's conversations with Pell eventually led to the Sea Grant College program.

John and I used to go out for martinis every few months to trade stories that only deans can trade. The martinis must be gin. They must be strong.

As a researcher John advised me to get my own funding for seagoing research. This may have been one of the most important pieces of advice he gave me. He told me that I would never understand oceanography if I didn't have to "fight the ocean to get samples; but you should have your own money and never have to fight anyone else to get your samples."

John also asked me to chair GSO's 25th Anniversary celebration in 1986, a year of reminiscence as well as forward thinking. His advice: As long as there's plenty of beer and wine at the final event, you will be hailed for your success. I can't remember anything except the final event—probably no one else can either. There was plenty of beer and wine. The thing most of us remember most about that year was that John announced that he would retire as Dean at the end of it. "25 years doing this is enough for anyone."

But of course, John didn't really retire. He spent Bob Duce's deanship in Washington as the Administrator of NOAA. I was a faculty member, going to sea every year and fighting the ocean for samples. Bob asked me to serve as Associate Dean and John's advice about going into administration was, "Hell, I did it for 25 years and it didn't hurt me! Couldn't be different for a woman."

A few years later I became Dean and John returned to the campus. Several people on the main campus urged me to send him away. They were concerned that the iconic John Knauss would interfere or that his

mere presence would make it difficult for me to establish my own leadership. No administration has ever had a more gracious, more generous, and more supportive icon to consult. He made sure that Roger Revelle visited and that we had time to talk about the future.

John and I used to go out for martinis every few months to trade stories that only deans can trade. The martinis must be gin. They must be strong.

A few of John's most interesting pieces of advice: "Never have a fancier office than the faculty (it can be larger and have a better view—since his was and did), or they'll assume you are wasting all the money." And finally, the piece of advice that I absolutely took to heart: "The most important thing you can do is to hire people that are smarter than you and let them run the place." 🍷

Dean Knauss was an explorer, educator, pioneering oceanographer, and a truly distinguished gentleman. He inspired countless students and has had a profound impact on marine policy and management that goes well beyond academia. His contributions to oceanography are vast and his legacy will continue to help guide us.

— RI Senator Jack Reed

The Man I Knew

CHRISTOPHER DuP. ROOSEVELT

ATTORNEY AND FORMER PUBLISHER OF OCEANS MAGAZINE
AND FORMER PRESIDENT OF THE OCEANIC SOCIETY

*Charter member of GSO'S first external advisory group
and current member of the Graduate School of Oceanography Advisory Council*

With all the learned tributes from the oceanographic, geophysical, and governmental spheres I have seen about our learned friend, John, I am not eager to put my very ordinary words to paper for anyone to see, much less read, but here's a try.

John had a way of attracting people around him of serious intellect and accomplishment. That's just one reason I found it such a pleasure and extraordinarily stimulating to be a small part of his "Advisory Council" meetings of the URI GSO. He made it clear when he invited me to join his first Advisory Council in 1983 that I was there to be a "token" representative of the environmental community; I was not to get any "airs" about why he had invited me. While I normally shy away from any kind of "token" roles, my prior experience with John lead me to trust him, and I accepted.

My first experience with John was when I gave some testimony on behalf of an ocean-related environmental organization before one of the many "ocean" boards he headed. I spoke in opposition to the disposal of retired, obsolete nuclear submarines by burying them deep in "stable" tectonic plates in the middle of the Pacific Ocean. He was patient and kind, almost to the point of humoring, this well-intended yet ignorant then advocate. Some months later, at an evening break at an ocean policy conference over on the Eastern Shore of Maryland, sponsored by the environmental organization for which I was then working, we found ourselves at an upstairs crab house in St. Michaels, Maryland, with a table full of steamed Maryland blue crabs (and not a few pitchers of beer). John held his own in the melee and told many jokes and stories, some of which became trigger points to laughs and grins at future quite serious events we were both to attend. There was definitely a raconteur side to John, frequently accompanied by epicurean delights, good wines, and other assorted beverages.

During one of our occasional encounters at some serious meeting or another, I made the mistake of thinking that when John closed his eyes he was asleep. Wrong. It was just his way of listening closely and considering what he was hearing carefully. He usually "woke" with a snap and then discoursed in a way that made you understand he had heard every word, considered it carefully, and then gently and politely offered an observation or a critique of astounding value.

Above all, while John seldom suffered fools, he was the most gentle, generous, and polite gentleman in suggesting we listen, rather than speak. His analytical and strategic thinking powers were of such immense proportions that almost every crowd, large or small, quieted when he began to speak softly. But beneath all that intellect and intelligence was a man of great humor, who truly enjoyed living and being with the people he loved in all the spheres of his active life. He will be in my mind as long as I have a mind.

Quietly yours with many fond memories of my friend, John. 🎩



Chris Roosevelt with Knauss.

Beneath all that intellect and intelligence was a man of great humor, who truly enjoyed living and being with the people he loved in all the spheres of his active life.

Dean Knauss set out to create in the Ocean State a comprehensive oceanography and marine studies program. When he left the University of Rhode Island to head up the National Oceanic and Atmospheric Administration a quarter-century later, his Graduate School of Oceanography had become one of the premier graduate education and research institutions in oceanography in the world, and Knauss Fellowships became among the most prestigious of marine policy grants. Beyond his foresight and leadership, John will be remembered for his collegiality and collaboration among the administrators, faculty, and students he touched, and for his passion for living.

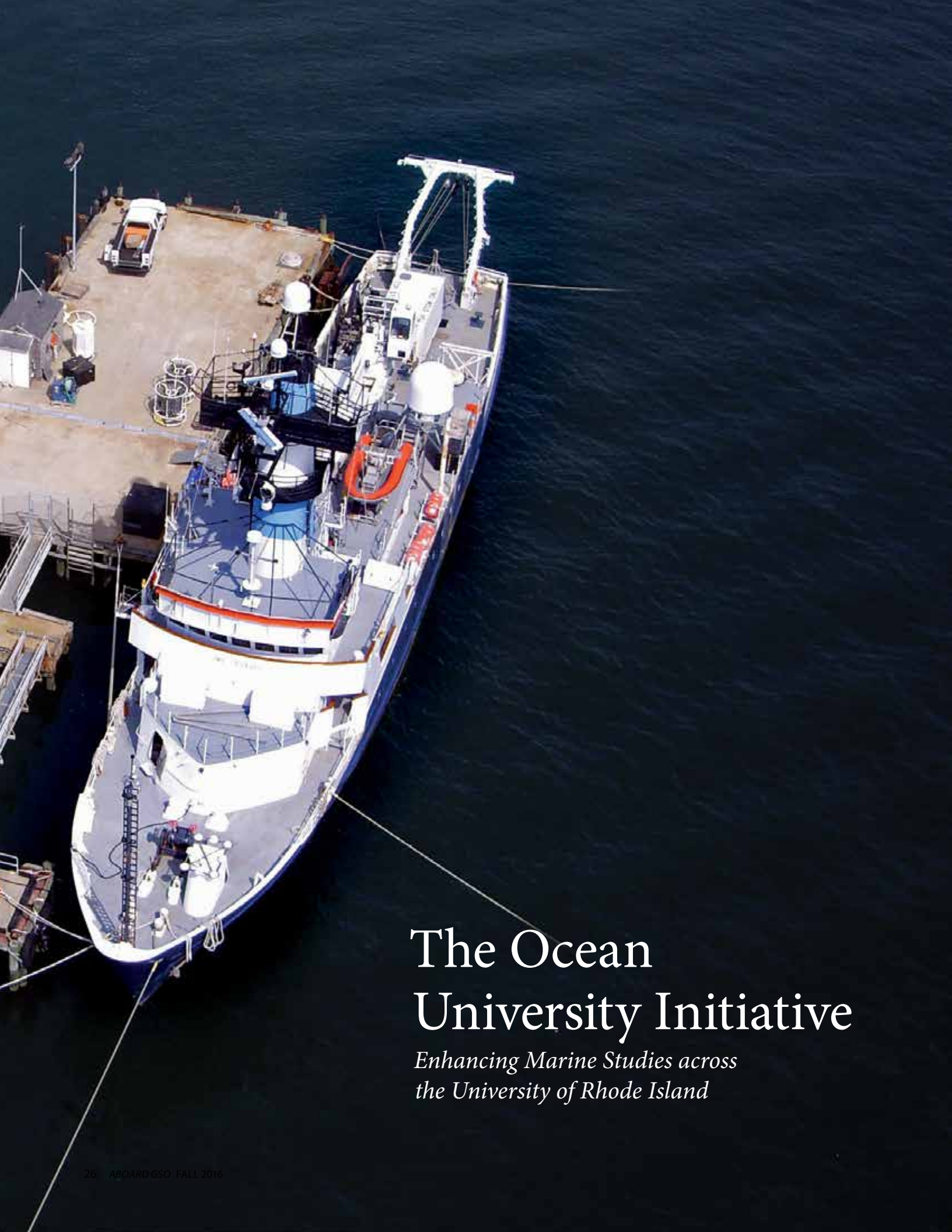
– RI Senator Sheldon Whitehouse



Looking Ahead

*Riding in the wake of John Knauss;
what's next for GSO?*

BRUCE CORLISS



The Ocean University Initiative

*Enhancing Marine Studies across
the University of Rhode Island*

The Graduate School of Oceanography has a long and storied history over the last half century highlighted by national and international recognition as one of the leading oceanographic institutions in the world. This success has resulted from a variety of factors, including dedicated and hard-driving faculty and marine research scientists, talented graduate students who have gone on to success in many areas of oceanography, and an outstanding and hard-working staff who are critical to the GSO operation.

Marine programs are found in most colleges within URI, yet a greater integration of the marine programs is desirable and can enhance current activities at a number of colleges. The Graduate School of Oceanography proposes to integrate, enhance, and coordinate existing marine programs across the university and contribute to a new identity for the University of Rhode Island that will be consistent with Rhode Island as the “Ocean State.” By providing a unifying theme, it will build on GSO’s reputation as a leader in marine studies as well as marine strengths across the entire university.

We have been teaching a number of undergraduate classes in Kingston in various departments and plan to enlarge our teaching effort with new classes over the next few years. Perhaps the largest effort with the initiative to date has been with faculty development. The Provost has begun an effort to hire 61 new faculty to address undergraduate teaching needs. As part of this new initiative, we were approved for two positions this last year; one in underwater robotics and autonomous underwater vehicles (with Ocean Engineering) and one in seafloor biogeochemistry. We also have faculty position proposals under development with the College of Environment and Life Science and the College of Pharmacy, and have begun discussions with the College of Business.

In looking to the future of GSO, it is worthwhile to consider a set of goals that will help with strategic planning, and they include:

1. Promote excellence and innovation in basic and applied ocean science research. This goal has been the backbone of GSO’s activity over its long history and it is important for us to keep this in mind. We need to identify research areas that should be maintained, as well as identifying new and promising developing research areas. It will be helpful to seek corporate and foundation support to fund innovative, high-risk,



URI students participate in a cruise aboard R/V *Endeavor*. Photo by Mike Costa.

high-reward research, in addition to the usual funding sources to explore future research areas.

2. Enhance graduate education in oceanography to address the needs of students with diverse career interests. To do this, we will continue to review and modify our curriculum to address current and future needs of the next generation of oceanographers. We will also promote the revised Master of Oceanography degree and the associated Blue MBA.

3. Enhance national and international outreach activities using research and educational programs as the foundation for this effort. GSO has an outstanding record of educational outreach and applying scientific information to the policy and management arena; we will continue this with both national and international projects.

4. Contribute in a significant manner to undergraduate education at the University of Rhode Island. To do this, we will focus on Honors, Grand Challenge, and general education classes that will help educate undergraduates about the oceans and their importance to the planet and the survival of the human race. We will also develop a comprehensive approach to experiential learning.

5. Maintain and develop infrastructure necessary to support cutting-edge research, education, and outreach activities. The infrastructure at GSO clearly needs attention and is hindering us in moving the school forward. The first priority is to replace the R/V *Endeavor* that will be retired in 2020-22. Plans are underway to do this and we anticipate that a proposal will be submitted in 2017 to the National Science Foundation. We recently completed a comprehensive master plan that addresses the future of the Narragansett Bay Campus for many decades to come. An overview of the master plan is presented next in this issue of *Aboard GSO*.

6. Expand GSO’s international presence. GSO has developed an impressive international presence over the last 50 years, and it is important to continue this effort to provide research opportunities, attract international students, and continue our outreach efforts throughout the world.

These are some of the goals we are considering as we contemplate GSO’s future. Building on the foundation Dean John Knauss helped construct during his tenure at GSO, we will continue to advance oceanography in the Ocean State in the coming years, which will serve as a lasting legacy to his commitment and leadership. 🎀



A New Vision for the Narragansett Bay Campus

The Narragansett Marine Laboratory, founded in 1936, was the basis for the Graduate School of Oceanography that was created in 1961. The North Laboratory (later renamed the Mosby Center) and the Fish Building existed at that time, and other buildings were subsequently built to make up the Narragansett Bay Campus. The campus has evolved in an opportunistic and somewhat haphazard manner with buildings built as funds became available. These included “temporary buildings” that ended up lasting for more than 40 years, including Butler buildings and a set of trailers. To provide an idea of the growth of the campus over the last half century, the campus had 8,000 square feet of building area in 1960, grew

to 171,000 square feet by 1978, and continued to expand to approximately 330,000 square feet by 2016.

The last master plan for the Narragansett Bay Campus (NBC) was completed in 2000. Since that time, the Ocean Science and Exploration Center (OSEC) was established, including the new Pell Library; a considerable amount of maintenance has been deferred on all the existing buildings; and the nature of the campus has changed with the addition of Ocean Engineering (OE) undergraduates, College of Environment and Life Science (CELS) researchers using the seawater laboratories, and the arrival of new GSO faculty with different research programs. In response to the need for campus renewal, stronger interdisciplinary collaborations, growing outreach and education programs, and a more strategic approach to campus planning, a master planning effort began last fall, supported by funds from the President, Provost, GSO, College of Engineering, and the Vetlesen Foundation.

GSO contracted Ellenzweig, an architectural firm in Cambridge, Massachusetts, with extensive planning experience, including work at the Woods Hole Oceanographic Institution, to carry out a comprehensive review of the current state of the campus and

existing and future needs, and to develop an integrated plan that would (i) support, expand, and respond effectively to current and future research and teaching (graduate and undergraduate) needs/requirements; (ii) provide enhanced outreach and education facilities; (iii) promote regional development to support technology innovation and economic development; (iv) enhance campus resiliency and ecological function; and (v) provide a cohesive approach to energy, landscape, and building location to optimize campus function. They gathered input from faculty, staff, and students from GSO, OE, and CELS over a two-month interval to form the basis for the plan.

A number of programming goals also helped focus the planning process. These included enhancing flexibility and collaboration of GSO's research activities, improving research facilities for OE, creating a campus commons with a focus on teaching, and creating a new initiative in Ocean Technology between GSO and OE to focus on robotics, incubation space, and equipment development. Additionally, a renovated, more capable and enlarged dock and new marine support

facility are important for GSO's effort to replace the R/V *Endeavor* with a new regional class research vessel (RCRV).

With these guiding inputs, Ellenzweig completed a detailed analysis of the NBC in three major categories: building condition and use, energy use and needs, and landscape and campus flow.

Building Condition and Use: The assessment of the existing buildings indicated that many are outmoded, inefficient, or of

poor-quality. Many temporary buildings have gone beyond their life cycle and other buildings have aging infrastructure

and failing building envelopes. This information helped drive the recommendations for building removal, renovation, or new construction.

Energy Use and Needs: The energy assessment indicated that many of the buildings and associated systems are inefficient or in need of replacement to most effectively and

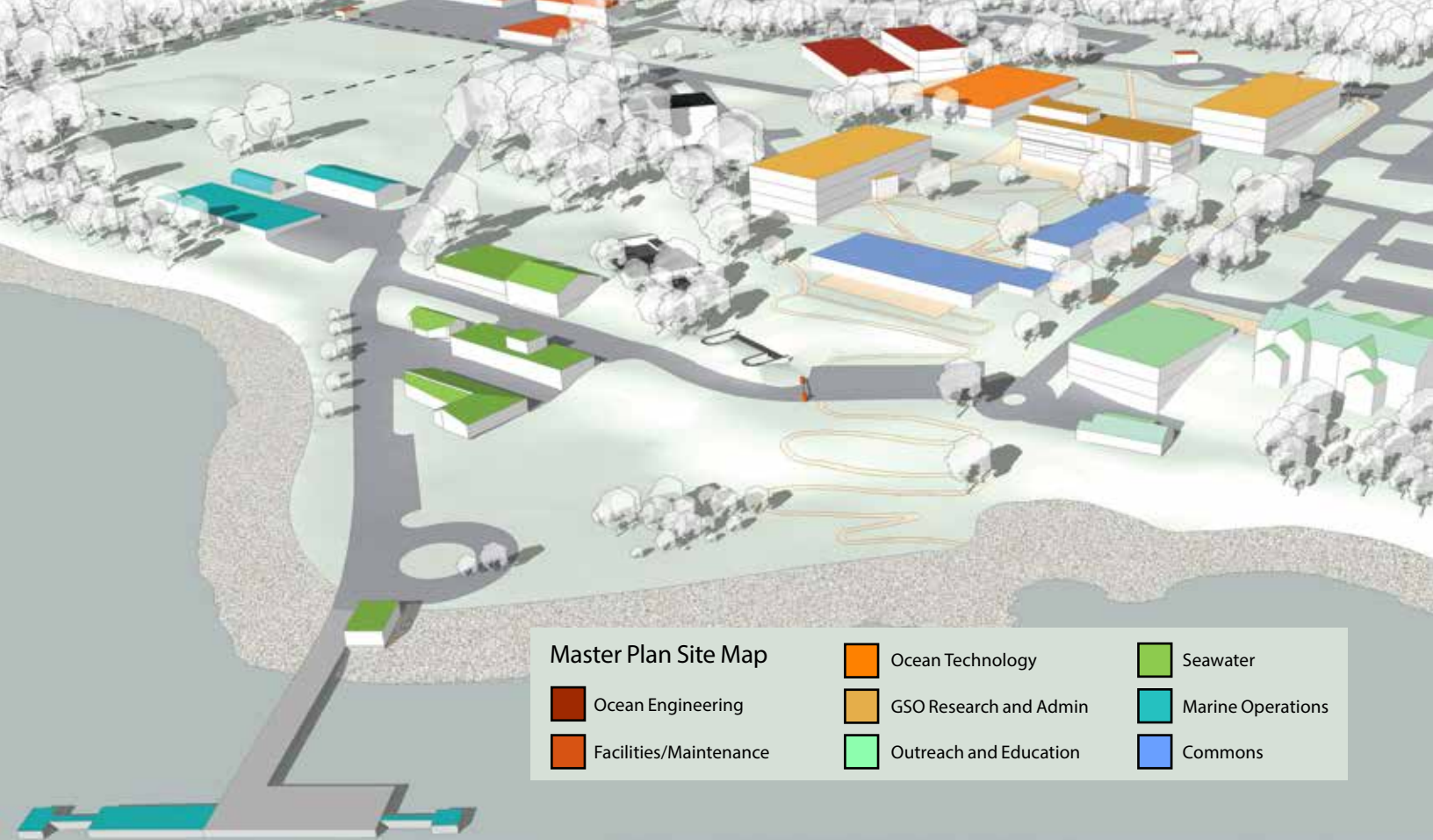
The URI Narragansett Bay Campus as it is configured today.











View the Narragansett Bay Campus Master Plan Online:

<http://gso.uri.edu/knauss>





Master Plan Site Map

- | | | |
|--|--|---|
|  Ocean Engineering |  Ocean Technology |  Seawater |
|  Facilities/Maintenance |  GSO Research and Admin |  Marine Operations |
| |  Outreach and Education |  Commons |

efficiently meet the campus energy needs. Energy costs are high in some buildings and in general, the buildings were not originally designed for flexibility. This information helped develop the recommendations for consideration of different energy options for new buildings, the use of photovoltaic arrays, and a strategy for becoming a Zero Net Energy campus.

Landscaping and Campus Flow: The landscaping and campus flow assessment identified the presence of myriad invasive plant and tree species; large impervious areas (e.g. paved parking lots, sidewalks, and roadways); and inefficient roadway, pathway, and parking schemes. This information guided the recommendations for returning native vegetation to the campus that would require low maintenance, and revising the roadway, parking, and pathway systems.

Overall, Ellenzweig’s analysis identified great opportunities to improve the land use planning; eliminate the ad hoc building location and appearance; improve the efficiency and flexibility of offices, labs, and support facilities; and work towards achieving a Zero Net Energy campus.

The NBC Master Plan outlines work that will span 10–11 years and cost approximately \$288M to fully implement. Highlights

include the recommended removal of 199,000 square feet of buildings and the construction of 271,000 square feet of new buildings. Specific recommendations include:

- Removing the existing Horn Laboratory, Fish Laboratory, Center for Atmospheric Chemistry Studies, the South Lab, Ocean Technology Center, and eventually Watkins Laboratory;
- New buildings to replace the Horn Laboratory, Rock and Core Facility, Ocean Engineering office, labs, and teaching spaces, and Watkins Laboratory;
- New buildings to create a Teaching Commons, an Educational/Coastal outreach building; a Marine Support Facility; a Maintenance Building; and a second new GSO laboratory building;
- Renovating the Ocean Science & Exploration Center and the Coastal Institute Building including the repurposing of two floors of the Coastal Institute to include residences for visiting scientists and students;
- Pursuing a Zero Net Energy Campus and optimizing campus landscaping to increase resilience and minimize maintenance;

- Moving the campus entrance westward up the hill to provide additional space for the new buildings. The circle road that currently exists would be maintained;
- Creating new and consolidated parking located west of the entrance road and new parking on the north side of South Ferry Road to accommodate parking needs for the education and outreach buildings; and
- Consolidating public areas (education, outreach) on the north of South Ferry Road and URI research and education on the south side.

We will continue to review and revise these plans as we go forward, but they provide an important map of the campus that is being used to chart the course of action to move the campus forward over the next several decades. We are developing funding and marketing strategies to effectively execute the plan.

These are very exciting times for GSO and the Narragansett Bay Campus. This vision builds on Dean Knauss’ early work and seems a fitting legacy to his contributions to the Graduate School of Oceanography and the University of Rhode Island. 🎩

Sustaining the Vision



Donations from GSO alumni and Friends play a critical role in advancing our educational and research activities. In a letter from Dean Knauss dated November 15, 1982, he wrote to GSO alumni soliciting donations:

"...Rather than emotional fund-raising language, we are relying on our past record to convince you that your money has been well managed and frugally distributed for a worthwhile cause. We hope that the previous fund-raising success and the need of our students, particularly in the current economic environment, will convince you to consider a modest increase in last year's gift. I can assure you that we will continue to do our best to direct the money where it is most needed and can be most effectively used."

John A. Knauss, Dean

This statement from Dean Knauss many years ago continues to capture our fundraising effort. We continue to use donations from Friends and Alumni to support student travel to scientific meetings and consider this a critical part of their graduate education; they have the opportunity to meet researchers in their respective fields and to begin to get their work known in the oceanographic community. Funding is also used to purchase equipment that is not available to a student, or for travel-related expenses to carry out a research project. Discretionary funds have been important for funding pilot projects for faculty and obtaining scientific equipment that can be used by a number of faculty and students.

If you have given recently to GSO, we thank you. If you have not given recently, I hope that you will consider a gift. I cannot imagine any graduate student or faculty over the last 50 years who has not benefited in some way from the generous support of GSO Alumni and Friends.

This is an exciting time in oceanography with broad recognition of the importance of the oceans to climate change, food resources, and an array of environmental challenges that affect not only the oceans, but the entire planet. Your gift is an investment in the future of oceanography and the students who will continue to explore the world's oceans. I hope you will consider supporting GSO.

To do so, please send the enclosed envelope with your check or credit card information to the URI Foundation or you can give online at: <http://www.urifoundation.org>.

Thank you for your support.

A handwritten signature in blue ink that reads "Bruce H. Corliss". The signature is written in a cursive style.

Bruce H. Corliss, Dean

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