

MARINE FRONTIERS

An Address by Hubert H. Humphrey
Vice President of the United States

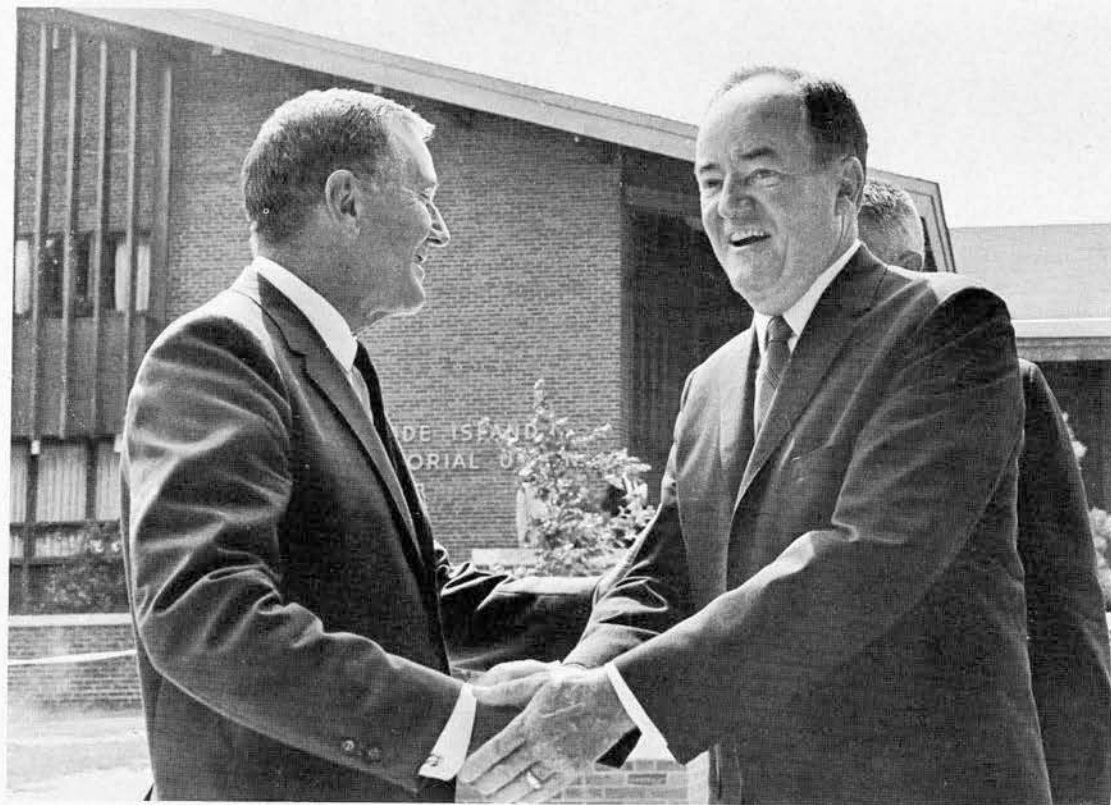
At the Conference on Marine Frontiers, sponsored by the
New England Council and the New England Marine
Resources Information Program at the University of Rhode
Island at Kingston



Senator John O. Pastore was praised by the Vice President as "Rhode Island's most illustrious son." The State's junior Senator, Claiborne Pell, was cited by the Vice President for his "long interest in ocean-related activities, particularly his far-sighted sponsorship of the Sea Grant Act." The Vice President also noted the presence of Governors and Congressmen from New England States and congratulated them on their leadership on today's marine frontiers.



The Vice President's speech before several hundred business, professional, and educational leaders from all the New England States was the 12th major address he had delivered on marine sciences during 1967.



Following the Vice President's helicopter tour of the area, Thornton N. McClure, acting president of the University of Rhode Island, welcomed Vice President Humphrey to the Rhode Island Memorial Union.



National press, radio, and television covered the Vice President's talk. He emphasized that New England constituted a modern marine frontier, beyond which all of the Nation awaited progress from the scientists and engineers who today are among our "marine frontiersmen."

MARINE FRONTIERS

Hubert H. Humphrey
Vice President of the United States

I can't think of a better place to discuss "Marine Frontiers" than at a university, in the company of leaders from the business, professional, and academic communities—because each of you is constantly working to conquer these frontiers. Our Government, as you well know, is deeply immersed in science and technology. Large sums of public funds have been extended to our universities and institutions and to our industrial establishment to expand the boundaries of science and technology. And the marine frontiers, like other frontiers, are yielding because of the close teamwork between Washington and the States and local communities, as well as industry and the academic world.

I can think of no State more appropriate for such a discussion than Rhode Island. You can be justly proud of the efforts of your legislators and others in the scientific area. Senator John O. Pastore, as Chairman of the Joint Committee on Atomic Energy and as an important Congressional leader, speaks for progress with an important and respected voice. No man in public life has done more to improve our science and technology, to maintain our national security and position of world leadership, and to help strengthen our economy—in short, to enrich America and make it a better place to live.

Your junior Senator, Claiborne Pell, also richly deserves

our appreciation and praise for his long-standing interest in ocean-related activities. He has helped to accelerate our entire marine science program. The Sea Grant Act, which he introduced and guided through Congress, promises to do for oceanography and marine resources what the Land Grant College Act did for agriculture a century ago. Our thanks must also be extended to Rhode Island's Representative Fernand J. St Germain, as well as to many other members of Congress from the other New England States. The six States of this region are leading the Nation in science and technology. The regional approach you are taking is spearheaded by the New England Council, a progressive organization which brings together all major segments of the economy for a coordinated attack on problems of mutual concern.

Professor John A. Knauss, your presence here today symbolizes the leadership of the University of Rhode Island and your sister New England universities in science and technology generally. We in Washington are especially indebted to you for your public service as a member of the President's Commission on Marine Science, Engineering, and Resources. We shall be watching with interest the growth of the New England Marine Resources Information Program at this university.

Marine Frontiers and New England

It may seem paradoxical, at first glance, for me to stand before a New England audience and talk about "Marine Frontiers" because the sea's vital role in the history and development of New England is a part of our American saga. The sea has been at the very center of New England's concerns since the landing of the Pilgrim fathers. Today, virtually every known water-related activity takes place on New England's coasts and in its estuaries—commercial fishing, shipping and ship construction, naval activity, ocean industry, municipal waste disposal, sport fishing and all kinds of marine recreation, and scientific oceanography.

Let me elaborate on two or three of those activities.

Commercial fishing in America started here in New England. I think a viable fishing industry ought to be extended here and one of the primary responsibilities of the Marine Sciences Council, and the Commission, as well, is to develop ways and means to stimulate a sound expansion of our great fishing industry—from the catch through processing and distribution. Our Nation should be in the forefront of the world's fishing industry, but we have let it lapse. New England's long experience in fishing makes it natural for you to lead this industry's resurgence.

New England has also been at the center of shipping and ship construction on the national level. We recognize as long overdue a broadened and expanded maritime program on which shipping and shipbuilding industries, maritime labor, Congress, and the Executive Branch can agree. When such a program is evolved, it will have great impact on the economy of this region.

New England also is the home of extensive Naval activities, which reminds us that national defense is one of our most

important uses of the sea. I was impressed by the great Naval facilities I saw at Quonset Point today. The *Lake Champlain* is a favorite aircraft carrier of mine. New England's Navy yards and many of its industries are all related to the sea. At the same time that our land frontiers have moved to the west our sea frontiers have remained important on the East Coast while they have become important, as well, on the Gulf and West Coasts.

The waters off New England offer ever-greater scope for marine activity of social and economic value. Recreation, sports fishing and boating, and scientific oceanography are three marine activities that are booming everywhere, especially here in New England.

This fabulous land of ours is blessed with vast resources, whose extent is yet barely known! New technology now permits us to explore and recover minerals on the continental shelf. I predict that we will, during the next few decades, find that we have "acres of diamonds"—not necessarily literally, but surely figuratively—under our feet, and many of these riches will be on the continental shelf.

What a day in which to live! I pray that I can live to the year 2000 because what's going to happen in the next 33 years will make us appear to have been standing still in the last 300!

One America, One People

We are on the threshold of a fantastic outward thrust. Our task as citizens—if we are to achieve our social and economic potential—is to keep this world in one piece, not blow it to pieces. Our task is to keep this America one America, not a divided America—not an America in turmoil, not an America in violence, but an America united in affection and respect and dignity. One America, one citizenship, one people. If we

can rebuild our national unity, rededicate ourselves to the proposition of human dignity and the worth of the individual, we can ride the succeeding waves of the fantastic outward thrust of progress in the 1970s and beyond.

Our science and technology can help us ride those waves to achieve a better country and a better world. I do not need to tell those of you here about the potential of the sea—but so few people know just how great it is. Go out and tell the world about the opportunities on our new marine frontiers!

I think food from the sea will be an important aspect in the solution of the world's hunger problems. These problems must be solved for humanitarian as well as practical reasons. In our land and in other developed countries, we must increase our commercial fishing efforts at all stages of food from the sea, from catch to table. At the same time, food from the sea can help solve the protein deficiencies suffered by millions of children around the world. Many of these children live within sight of the sea. Fish protein concentrate (FPC) is a non-toxic, odorless product, easily stored and transported, clean, palatable, and nourishing. FPC can be added to a child's diet for as little as a penny a day. We have made the technological breakthrough. Our next step is to help some developing countries build plants to produce FPC to feed their own people.

Then there are new prospects for heavy minerals from the ocean bed. Not long ago I was down in Florida, where there is a fantastic deposit of manganese ore right off the coast. Any Nation that can put a man on the moon ought to be able to put a man on the bottom of the ocean to mine that manganese. I think we'll do both—economically and beneficially to all men—and I think we'll do them before I get my Medicare!

Food and minerals are just two examples of the rich potential of the oceans and the marine environment. Our ever

expanding population demands that we realize as much of this potential as possible.

A little more than a year ago, Congress adopted a far-reaching and unprecedented policy to establish a unified and intensified program in marine sciences. It directed the President to develop such a program with the advice and assistance of the National Council on Marine Resources and Engineering Development, of which I am proud to be the Chairman. The Council is a Cabinet-level body advising the President, setting priorities, coordinating the efforts of 24 Government agencies, and providing leadership for the national program in oceanography, in close cooperation with States, institutions, and industry.

Two Great Problems

From that perspective and without minimizing food or minerals from the sea, I want to devote the rest of my remarks to two other great problems. Neither of these confronts us with irreversible doom; rather each is a positive challenge—in a very real sense, an opportunity. They are (1) the conflicts of interests in the use of our shoreline and (2) the pollution of our streams and estuaries.

First, the conflicts of interests in the use of our shoreline. I saw today some of the many beautiful beaches in Rhode Island. I wonder if you know how fortunate you are. I come from the Land of 10,000 Lakes, and we are proud of those lakes. But I have to be frank with you: many of them are polluted today, ruined because of man's indiscretion and lack of concern. Your Atlantic beaches, on the other hand, are still largely clean. Here in the East, a TORREY-CANYON-type accident—damage to a tanker with devastating oil pollution—could, however, ruin Narragansett Bay. Nature put these beaches here for people—to give us the wholesome recreation

that a busy and hardworking people need to enjoy, so that after a weekend or vacation you can return to normal duties refreshed and energized. So we must take care not to destroy our beaches, through pollution, from any source, or through neglect, or through conflicting uses no matter how legitimate.

The estuaries and shorelines of our country already support a vast economy. Offshore oil is a major contributor to our economy; dredging of sand, gravel, and shell from estuaries and the continental shelf contribute significantly to our environmental development; those and other great industries provide jobs and wealth for our people and their communities.

When we think of our marine environment, we tend to visualize the Pacific Ocean, the Atlantic Ocean, the Gulf of Mexico, or the Indian Ocean, or the Caribbean Sea. Though we speak in these vast terms, the most useful and important portion of that environment—both actual and potential—is the cities with their harbors and estuaries, the beaches and boating facilities, the centers of shipbuilding and shipping, the waters to the edge of the continental shelf, the Great Lakes, and the adjacent shoreline lands. We call this vast area the coastal zone, and it's where the people and the seas meet. The coastal zone is right here at our fingertips, ladies and gentlemen, for us to do something about. It includes the nursing and feeding grounds for most of our commercial fish and all of our shellfish, a \$400 million industry. It forms the inspiring setting in which we build homes, resorts, and cities.

In some parts of the country, thanks to modern desalting technology, the coastal waters are beginning to serve as the sources of fresh drinking water. I recently dedicated, in Key West, Florida, a great desalinization plant—the largest constructed so far in the world. It produces 2,600,000 gallons of

fresh water a day. The water is supplied at half the price that the community was paying before that desalinization plant was completed. By 1970, there will be a desalinization plant in Los Angeles producing 150 million gallons a day for Southern California. With atomic energy we will be able to take the salt or brackish waters of the sea and make them into fresh waters, generate power, manufacture fertilizer, all at reasonable costs.

Look at the social values of providing clean, safe water to people who need it, say on the desert. You enable people to live where no life was possible before. With the same atomic energy with which you desalt the water, you also provide fertilizer. With the fresh water and the fertilizer, you can make the desert bloom, bringing jobs and money to tribal people, strengthening nations, making peace more likely. Make no mistake about it, where there is constant want for food, there is no peace. Where there is food, there is no want. And the seas can provide health, water, food, jobs—the basic needs which give us enhanced opportunity to realize peace for mankind. Of course that is simplifying a very complex situation, but such a positive use of technology would give us an encouraging potential for progress.

That prospect may seem far removed from the interests of you people in New England, but I don't believe that it is far removed. Many of the products and technology to create oases in the arid lands overseas—and in parts of our own continent—are even now being created in New England laboratories and plants.

But primarily I want to emphasize our shorelines and estuaries and what they mean to you in New England. They mean recreation; they mean tourism; and they mean economic development—and those features of life are not prospects; they are real.

The coastal zones can contribute to more than just economic development. They can enhance human values as well. All of the activities that I have mentioned compete for the available marine resources, and this competition is steadily growing. While some of them are mutually compatible, some of them are in contest and in conflict.

The second great problem I want to mention is the pollution of our streams and estuaries. We use these waters in many ways, one of which is waste disposal. By abuse and misuse, we have turned some of our streams and estuaries into dangerous sewers. I am deeply concerned because:

- Man does not have the right to despoil nature's gifts.
- Each of us has a responsibility to guard our natural heritage.
- We were put here on this earth as stewards, not as exploiters.
- We were put here as builders, not as destroyers.

This is the most important point I want to make to you today: We were put here on earth to add to what nature and Divine Providence has given us, not to take from it! And Americans have a particularly great obligation in this regard because our marine frontiers are so extensive, our society and our economy are so complex, our heritage is so great, and our aspirations for our children—and all the children of the world—are without limit!

Each essential use of the shoreline serves a practical purpose, but each use also has important social and economic costs. For example, pollution introduced into an estuary by the great cities and harbors, or by drilling and mining, can ruin the seafood and recreational resources in the coastal zone for

miles around unless we anticipate problems and take steps to alleviate them. The developer who fills land to build houses, or the dredger who is concerned only with navigation, can destroy, for all time, unique wildlife habitats and shellfish beds. Future generations could then ask, "why didn't past generations care and act more wisely?"

We now know that our valuable shorelines and water resources are vulnerable, as well as valuable, and once they are committed to certain kinds of development or exploitation, their value for alternative uses is often permanently destroyed.

Man discovered long ago that undesirable by-products could be carried out of sight by streams and rivers. That didn't matter so much in earlier years, because most of our wastes were biologically degradable. But today we have different kinds of wastes, mineral wastes, that come from industrial processes, that are not soluble or biologically degradable. These new wastes are an increasing factor in the waste-disposal problem. The total waste load is growing at such a pace that it is exceeding the self-cleaning capacity of the streams. In fact, many of the rivers in America today are already polluted, and large public investments will be needed to save them.

We have the knowledge and the technology right now to take a series of steps to reverse this trend towards more and more stream pollution. In a moment, I will list these steps. First, however, let me emphasize that we must have a social decision—a determination to reverse a socially undesirable trend. You and I are the people who will have to do it. I was pleased to note, here at the University of Rhode Island, with your integrated science program, that you have a water quality laboratory on the way. Setting standards for water quality in estuaries is an essential first step toward reversing the pollution of our streams. These standards will vary with the uses to which a given estuary is to be put.

We must resolve, through intelligent social processes, the conflicting interests in the use of our shoreline. As a corollary, we also must halt and reverse the pollution of our streams and estuaries. Those are the two key thoughts I want to leave with you today.

To Develop Wise Choices

We urgently need more conferences like this and more organizations like the New England Council, which bring together the best talents of an area, to develop the means for making wise choices. These choices must yield a compatible set of uses. These must be wise choices that do not destroy natural resources but rather complement such resources and the communities and industries dependent upon them. They must be choices that judiciously balance development and conservation in dealing with competing demands for shoreline and water resources.

There are three steps to wise choices . . .

We must have a much better picture of our total maritime resources. I am happy to say that we are acquiring that picture. An inventory of the Nation's estuaries is proposed in bills now before Congress. Legislation calling for a survey of our beaches, from the standpoint of erosion problems, has also been introduced.

Meanwhile, the Marine Sciences Council—the short name for the NCMR&ED—is sponsoring case studies of competing-use problems. These studies are focused on present and projected uses of the Chesapeake Bay and of the Seattle-Tacoma Harbor area. We regard these as pilot projects from which generally useful approaches may be developed for wide application.

Secondly, we must start now to utilize marine technology in cooperation with other on-going public programs. Urban

renewal in coastal cities, for example, by a merger of technology, marine sciences, and public programs can have a very great potential for enhancing the quality of our lives.

The port facilities and the harbor slums which occupy many urban waterfronts are remnants of a transportation technology that is now completely out of date. Many breakthroughs—containerization, hydrofoils, air cushion vehicles, super-tankers (a 500,000-ton capacity tanker is on the ways in Japan right now)—these breakthroughs make it possible to disperse port functions from the crowded city's edge or even to move them entirely offshore. Such developments mean that, in many cases, the waterfronts of yesterday can be made over into genuinely pleasant residential areas or the most sophisticated retail and industrial areas, healthy and safe for everybody to live in, shop in, work in, and enjoy. They mean that nearby harbor beaches, which have been used for port facilities, can be made available to millions and millions of our people, particularly our youngsters, who are now confined to the ghettos of concrete, steel, and brick. In short, such technological developments mean that we can go back to our Nation's heritage. Our oldest cities and their seaports can be made over into our newest, most modern, most desirable, exciting, and interesting places to live!

Third, we must press ahead in the marine sciences to solve the related problems of conflicting uses of our shoreline and the pollution of our estuaries and streams.

We must set standards of water quality in the estuary. These standards should be set on the basis of quality needed for known specific uses.

Next, we must set standards for the emission of wastes by sources that discharge them into the estuaries and their tributaries. This means that we have to reach reasonable

agreements with the producers of wastes—both municipalities and industries—on maximum permissible rates of discharge.

Finally, we also must reduce the volume of such wastes. This can be done by improving process-control to reduce the production rate of wastes, treating wastes, and disposing of them on land, or, hopefully, reclaiming them for beneficial purposes. In the long run, reclaiming and re-using waste products may provide the most practical answers. We can possibly devise incentives such as tax incentives or other economic benefits to encourage waste treatment and control. Whatever it takes, we must do it, and no part of America has a greater stake in our success than a great coastal area, whose water is its greatest resource.

To Awaken to Danger

My fellow Americans, we have got to wake up! We have let wasted human resources accumulate until today social fermentation threatens our Nation. And we are about to find ourselves in the same hot water in terms of waste products that affect our other resources—our water and the air that we breathe. Modern science and industry, for all of their blessings, have brought this curse. But the same science and industry, with the cooperation of many institutions and individuals, with responsibilities public and private, can remove the blight, just as the scientists who split the atom to make devastating bombs have also learned to apply atomic energy to save lives and to give us all a better life.

Science is not wrong; industry is not wrong. Neither science nor industry has an intrinsic morality. The question is what does man do with science and industry? What are his ethical

standards? Does man have a moral purpose? If he does, then he can use science and industry to create and enhance the good life. If he does not, our technology and our science can destroy us. It's that plain and simple, and it is later than you think.

At the current rates of pollution, this Nation could literally choke itself to death in both air pollution and water pollution unless the men in this room and your governments—Federal, State, and local—and your universities, and your industries, and all the associations which bring those interests together—unless you, individually and collectively, make up your minds that we cannot afford this disaster.

We Americans immerse ourselves in talk about our rights. What about our responsibilities? There is no right without a responsibility. There is no liberty without a duty. They are companions and rights become meaningless and indeed are lost unless those who pride themselves in those rights are willing to accept their share of responsibility for the defense and protection of rights for others as well as themselves. So we need citizenship participation in every aspect of these problems on the marine frontiers.

Problems like pollution control and competition for use of the shoreline cannot effectively be handled by either the public sector alone or the private sector alone. No one level of government seems likely to be able to deal with them adequately. And it would be an undue burden on the private sector to expect industry alone to abate pollution to which the rest of society so profusely contributes.

In the Marine Resources and Engineering Development Act, the Congress called for ". . . effective utilization of the scientific and engineering resources of the nation, with close cooperation among all interested agencies, public and private." And it directed that the programs should be ". . . conducted by departments and agencies of the United

States, independently or in cooperation with such non-Federal organizations as States, institutions, and industry . . ."

These important phrases recognize that the Federal Government cannot and should not go it alone in the marine science area.

Federal involvement in a social problem is frequently dictated by the geographic scope of the problem, the burden of cost, or the benefits, especially where the benefits are clear but widely dispersed.

A few examples are the National Seashore Park System, experimental desalinization, mineral resource surveys, search and rescue services, and ocean weather services.

The Federal Government also has a natural role in scientific research and development and in the identification of irreplaceable environments which must be protected at all costs.

But in those regards the States have increasingly important responsibilities as key channels of communication—through their governors' offices—between their communities and the Federal Government.

This is a two-way communication, which keeps Washington informed of local problems and plans, and provides Federal advice, information, and financial aid. State governments can also conduct and coordinate State-wide or multi-county projects on their own.

Most of our problems of conflicting demands, involving the shoreline or pollution, are local or regional problems.

The citizens of the affected region stand to benefit the most from ameliorating a particular condition, and so it is logical that major responsibility for doing so should rest with them.

But technically trained personnel are usually scarce on the local level, and it is vitally important that the State govern-

ments make available their own technical resources, as well as those of the Federal Government.

To Involve the Private Sector and Non-Profit Organizations

Finally, the private sector has a vital role in the protection and development of our marine resources.

The cooperation of industry is essential for any pollution control program. The ingenuity of industry is essential to develop processes and equipment, to produce the tools, and to market them to the organizations that can use them.

Universities have a particularly important role in solving technical problems and providing new scientific knowledge.

Public-minded conservation groups must continue to play an essential "watchdog" role.

Fortunately, we already have some important new agencies, such as the River Basin Commissions, which under some circumstances provide a structure within which all of these organizations, both public and private, can work together.

Similar agencies might be created to deal with coastal problems. In fact, I would urge you of the New England States to consider this regional approach to the role of the private sector in marine science affairs. This is the principle on which you already are operating—I am merely asking for an extension of the principle.

The sea is still as mysterious, unpredictable, and inviting to us as it was to the ancients. Yet, today, we are deeply aware of its great practical potential. Modern marine science offers us fresh opportunities both to learn the secrets of a challenging frontier, and having learned, to enhance the quality of our lives, both physically and spiritually. These are our marine frontiers.

This address was delivered at a Conference on Marine Frontiers sponsored by the New England Council and the New England Marine Resources Information Program at the University of Rhode Island, Kingston, July 27, 1967.

Dr McClure

REMARKS

David Coffin -

new England
Council

VICE PRESIDENT HUBERT HUMPHREY

CONFERENCE ON MARINE FRONTIERS

UNIVERSITY OF RHODE ISLAND

KINGSTON, RHODE ISLAND

JULY 27, 1967

Sen Pastore -

Sen Pell -

Cong St. Herman -

Cong Tierney -

Gov O'Donnell
- Gov King
- Gov Curtis
Gov John Chafee

R. Island
vacation ground,
for Presidents!
How about Vice President

I am honored and pleased to address your

conference on "Marine Frontiers," I like to come to

a University -- to me, campuses evoke the atmosphere

of a stimulating intellectual give and take. And we

need a lot of that if we are to take full advantage of

our new marine frontier. (Scum, Spore,
Ocean)

I am especially pleased to be in the state of

Rhode Island, whose legislators have done so much to

assist our nation's efforts to use the results of your work.

U.S. NAVY

④ Just
④ Hog
Pier

Saw some
fishes
digging for
quail

Landed at this Francis Green Airport

Traveled South along the Bay -

West Shore of Narragansett Bay

"U" Research Center - to Point Judith

Coast Guard life house.

Wickford, Narragansett Pier - Kingston

↳ Senator Pell's interest in ocean-related
activities has been a vital factor in developing the
accelerated program we have today.

↳ The Sea Grant Act, which he introduced and
guided through the legislative process will help develop
manpower and research capabilities to meet our country's
growing needs.

↳ And Senator Pastore is, of course, a powerful
leader in the Congress. The entire nation is indebted to
him for his ^{broad-gauged} / understanding and support of
programs to strengthen our economy, improve our science
and technology, and ^{our} maintain / national security and
position of world leadership.

↳ As an influential member of the Appropriations
Committee, he has helped to decide whether we will have the
cash to match our ideas.

Congressman St. Germain
Congress Robert Tierman

For V.P. Special Oceanography
We are especially indebted to the University of Rhode Island for Professor John ^{Knauss} Knauss' valued participation on the Marine Science, Engineering and Resources Commission.

It may at first glance seem paradoxical to speak of a "marine frontier" in New England because the sea has played such a central role in the industrial and commercial life of New England ever since the Pilgrims landed.

Every Region its Resource
Today virtually every known water-related activity takes place on the New England coast and estuaries -- commercial fishing, shipping and ship construction, naval activity, industry, municipal waste disposal, sport fishing and other recreation, and scientific oceanography.

more to come
But the water now offers, and will offer in the future even greater scope for activity of social and economic value.

Gas
Offshore oil assumes a rapidly growing strategic importance.

L Food from the sea is becoming a vital weapon ^{FPC}
in the war on hunger. (Protein 1 lb a day)

L And new prospects for heavy minerals from
the oceans offer promise.

L Our expanding population, our growing needs
for both recreation and resources, demand that we use
the marine environment and its resources more fully --
and at the same time more economically -- than ever before.

and Advances in marine sciences and engineering enable us to
do just that.

L ~~and~~ And in this very real sense, we do indeed
have a "frontier."

L A little more than one year ago, Congress adopted a
far-reaching and unprecedented policy to establish a unified
and intensified program in marine sciences.

Congress

↳ It directed the President to develop such a program with the advice and assistance of the National Council on Marine Resources and Engineering Development.

↳ As chairman of the Council, I am privileged to join in this effort to create a coherent federal program in close cooperation with the states, ^{educational} institutions, and industry.

↳ From that perspective, I would like today to discuss with you two major problems: The conflict of interests for use of the shoreline, and the pollution of our estuaries.

↳ If we are to protect and upgrade our marine resources, we will need close teamwork between Washington and the states and local communities, as well as industry and the academic world.

↳ We will also need the best and most imaginative ideas -- and New England's keen minds have been oriented to sea for generations.

So, we come to see you - to talk, to see, to listen, to learn!

V.P.
space +
oceans

Here is
the key

When we think of our marine environment, we tend to visualize the great expanses of the Atlantic and Pacific Oceans and the Gulf of Mexico.

In fact, the portion of that environment of greatest usefulness -- both actual use now and potential use for the future -- is made up of our harbors and estuaries, the waters to the edge of the Continental Shelf, the Great Lakes and our adjacent shoreline lands.

These are the nursing and feeding grounds for most of our commercial fish and all of our shellfish -- which nationally provide the basis for a 400 million dollar a year industry.

It is here that we find our centers of shipping and ship-building.

In some parts of the country, thanks to modern desalting technology, coastal waters are beginning to serve as sources of fresh drinking water.

(Key West - 2,600,000 gallons)
Per Day
Los Angeles - 150,000,000 Per Day

∟ These areas already support an oil industry and the dredging of sand, gravel and shell from estuaries and the Continental Shelf is now a significant national industry.

∟ The waters of our streams and estuaries serve also for waste disposal. By abusing that use, we have made some of them immense sewers. I shall return to that subject in a few minutes.

∟ One of the most important uses of the marine environment, especially in New England, is recreation.

∟ Tourism is economically important today in New England, and it will grow steadily.

∟ But we all know that an economic measure does not fully express the human recreational value of New England's rocky coast and beautiful beaches.

∟ All of these activities and many others compete for our limited coastal marine resources.

∟ This competition is increasing steadily. And while some of these uses are mutually compatible, many are directly in conflict with each other.

∟ Pollution introduced into an estuary by the great cities and harbors, or by oil drilling and mining, can ruin food and recreational resources.

∟ The developer who fills land to build houses, and the dredger who is concerned only with navigation, can destroy unique wildlife habitats and shellfish beds.

∟ Each of these uses serves a practical purpose, but each also has important social and economic costs.

∟ Our valuable shoreline and water resources are vulnerable -- and once they are committed to certain kinds of exploitation, their value for alternative uses is often permanently destroyed.

∟ We therefore urgently need to develop the means for making wise choices which yield a compatible set of uses --

and a balance between development and conservation -- in dealing with competing demands for shoreline land and water resources.

∠ We need, in the first place, a much better picture (1)
of our total national marine resources.

I am happy to report that we seem to be on the verge of some progress in this area. ∠ An inventory of the nation's estuaries has been proposed in bills now before both houses of Congress. ∠ An inventory of our beaches, from the standpoint of erosion problems, has also been proposed.

∠ Meanwhile, the Marine Sciences Council is sponsoring case studies of the "competing use" problem. ∠ These studies are focused on the present and projected uses of the Chesapeake Bay and the Seattle-Tacoma Harbor area, as examples of the varied local situations from which generally useful approaches may be developed.

(2)

Secondly, we must start now to utilize modern marine technology in ~~conjunction~~ ^{cooperation} with ^{other} on-going public programs. I am thinking specifically of urban renewal in our coastal cities.

The port facilities and harbor slums which occupy most urban waterfronts are the remnants of a transportation technology which is now completely out of date.

Containerization, hydrofoils, air cushion vehicles, super-tankers and many other recent technological breakthroughs may make it possible to disperse port functions or move them offshore.

This would mean that in many cases waterfronts can be made over into genuinely pleasant residential areas.

It means that nearby harbor beaches can be made available to millions of city youngsters who are now confined to dreary cement-lined environments.

(3) Third, we need to press ahead in the marine sciences to find instruments which will enable us to make informed choices among conflicting marine interests.

out ~~It has been suggested, for example, that we develop a "model of the marine ecology" which would describe our shoreline resources quantitatively, and define their dynamics — the major interactions of the sea movements and the land, the biologic cycles, and the water cycle.~~

~~Such an instrument for summarizing the shore's complexities would be analagous to the economic models which we depend on in establishing national economic policies.~~

(X) ~~Meanwhile, however, our marine heritage is endangered by irreversible changes.~~

~~We must act now to retain the widest range of options for use and development of these resources until considered choices can be made.~~

L We must make every effort to see that our
continuing ad hoc decisions are made in terms of a
better understanding of the variety of environments and the
range of development uses and conservation values
to be balanced.

L We may also need to shield certain estuarine
areas and coasts from further exploitation of any kind
until knowledgeable choices can be made. L There is
substantial precedent for reserving land and water areas
for conservation purposes -- as in national parks and
wilderness preserves. The idea of reserving estuarine
waters against premature exploitation is spelled out in
several Bills now before Congress.

* * *

L Now I want to turn to what is certainly the most
immediate single task before us today in the field of marine
resources -- pollution.

Men discovered long ago that undesirable by-products could be carried out of sight by streams and rivers. Fortunately, many of our wastes are biologically degradable -- they are broken down by marine bacteria into chemical building blocks for a new cycle of creation.

But today mineral wastes from industrial processes, which are not biologically degradable, are an increasing factor in the waste-disposal problem.

The total waste load is growing at an accelerating pace. In some places it already exceeds the self-cleaning capacity of the waters into which it flows.

~~In many estuaries and lakes, pollution now threatens not only other constructive uses of the water, but even fundamental ecological processes by which life is sustained.~~

We know enough right now to take a series of practical steps which can substantially reduce the pollution threat.

② water quality
HAB.
etc.

(1)

For each situation, the first step is to set standards for water quality in the estuary. These standards should be set on the basis of quality levels needed for specific uses of the estuary.

(2)

The second step is to set standards for the emission of wastes by sources discharging into the estuary and its tributaries. This means reaching reasonable agreements with producers of wastes -- both municipalities and industries -- on maximum permissible rates of discharge.

It also means enforcement. ! + Cooperation!

(3)

A third step is to reduce the volume of wastes. This can be done by treating wastes, disposing of them on land, improving process-control to reduce the production rate, or finding constructive uses for the wastes.

Reduction of wastes benefits society, but usually costs more than the direct benefits to the producer.

Incentives may therefore be desirable.

↳ In the long run, process and product designs to reclaim and re-use all waste products may provide a practical answer for waste disposal.

↳ Adequate protection and utilization of our marine resources presents great engineering challenges.

↳ But it presents an enormous administrative and political challenge as well.

↳ Problems like pollution control and competition for use of the shoreline cannot effectively be handled by either the public or the private sector alone. And no one seems level of government / likely to be able to deal with them adequately.

↳ In the Marine Resources and Engineering Development Act, the Congress called for "...effective utilization of the scientific and engineering resources of the nation, with close cooperation among all interested agencies, public and private."

And directed that the programs should be "... conducted by departments and agencies of the United States, independently or in cooperation with such non-federal organizations as states, institutions, and industry..."

↳ These important phrases recognized that the federal government cannot and should not go it alone in the marine science area.

↳ Federal involvement is frequently dictated by the geographic scope of a problem, the burden of cost, or in cases where the benefits are clear but widely dispersed,

↳ Good examples are the National Seashore Park System, experimental desalinization, mineral resource surveys, search and rescue services, and ocean weather services.

↳ The federal government also has a natural role in research and in the identification of irreplaceable environments which must be protected at all costs.

└ But the states have increasingly important responsibilities as the channel of communication -- through their governor's office -- between their communities and the federal government.

└ This is a two-way communication, which keeps Washington informed of local problems and plans, and provides federal advice, information, and financial aid.

└ State governments can also conduct and coordinate state-wide or multi-county projects on their own. - as here in R.I.

└ Most of our problems of conflicting demands for shoreline or of pollution, are local or regional.

└ The citizens of the region or area stand to benefit the most from ameliorating a particular condition, and so it is logical that major responsibility for doing so should rest with them.

└ But technically trained personnel are usually scarce on the local level, and it is vitally important that the

state governments make available their own technical
resources, as well as those of the federal government.

Finally, the private sector has a vital role in
and development
the protection/of our marine resources.

Industry

L The cooperation of industry is essential for
any pollution control program. The ingenuity of industry
is essential to develop processes and equipment.

L Universities have a particularly important role
in solving technical problems and providing new scientific
knowledge.

University

L Public-minded conservation groups must continue
to play an essential "watchdog" role, but not obstruction

L Fortunately, we already have some agencies, such
as the River Basin Commission, which provide a structure
within which all of these organizations, both public and private,
can work together.

Similar agencies might be created to deal with coastal problems.

The late Robert Oppenheimer characterized science as that "... high and lovely part of life which, with all its discipline, is still directly responsive to deep human need."

His words describe well our mission in marine science which fulfills both spiritual and practical human needs.

The sea is still as mysterious, unpredictable, and inviting to us as it was to the ancients; and at the same time, we are deeply aware of its great practical potential. Modern marine science offers us fresh opportunities both to learn the secrets of a challenging frontier and to enhance thereby the quality of our lives, both physically and spiritually.



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