

IN DEFENSE OF THE ISLANDIA NATIONAL MONUMENT

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It is my earnest conviction that the people of Dade County, of Florida, and of the United States would gain substantially more by setting aside the 33 islands of Islandia as a National Monument than by allowing a Miami Beech type of development to be built there.

Life is a series of compromises, and when any decision is made, whether major or minor, whether by an individual or by a government, something is lost and something is gained. A good decision is one where the value of the things lost is less than the value of those gained, and when the number of people affected by the things lost is less than the number of people affected by those gained. It cannot be denied that it would be good if a Miami Beach type of development were made of Islandia. What is highly questionable is whether this good would be greater than the good if a National Monument were created, and whether more people would benefit.

The controversy about the fate of Islandia, like many another argument of a similar kind, has been seriously obscured by fussy definitions and misinformation on issues. Those who favor private development of Islandia sometimes use arguments I consider frivolous or false. Those who favor public development all too often use arguments which are so vague and poorly documented that their force is lost. It is little wonder that conservationists are commonly labeled as do-gooders, with no concept of the realities of life. It is my hope in this presentation to dissolve some of the mist that obscures these issues, to define some terms, and to provide some solid data in support of the position of those who back the conservation of Islandia as a national monument.

There has been a great deal of confusion as to what a national monument is, and apparently the term frightens some people. To them a "monument" is a piece of granite surrounded by a high fence, whose purpose is to take an area out of circulation - to prevent public use. This concept is repeated by those who do not want Islandia set apart in any form as a public area to feed the doubts of others who would be happy if Islandia were planned as a national park but who doubt the wisdom of making it a national monument.

The fact is that a national park and a national monument are essentially the same thing. A national monument is not a means to exclude the public. On the contrary, a national monument may be handled in a more liberal manner than a national park, making it more and not less available to the public. Originally the concept of the National Park Service was that a national monument would be created to protect a single feature or a small area, for example an Indian ruin or an historic house, whereas a national park should be a large complex. This restricted view of a national monument does not always hold true. Mount McKinley National Monument is one of the biggest natural features in the country - no less than the highest mountain in North America.

In the manner of their creation there may be some differences between a national park and a national monument, since the former is always created by an act of

Congress, while a national monument may be created by proclamation of the President. But in practice, since federal funds are involved, authority for the creation of a national monument is nearly always cleared through the appropriate House Committee, and frequently also through the Senate Committee. Thus, we should dispel the idea that Islandia as a national monument would result in the area being fenced in. It will be used, not like all national areas, it will be preserved so that it can be used forever, essentially as it is now.

Three major advantages of making Islandia a national monument can be listed. First, it will provide a badly needed recreation area. Second, it will preserve an area of beauty and uniqueness, and populations of animals and plants of beauty and uniqueness. Third, it will prevent destructive changes to a much wider area, outside the bounds of Islandia itself.

Islandia offers recreation in many interesting forms: boating, fishing, picnicking, skin and scuba diving, camping. It offers the opportunity simply to look at an area which is beautiful.

But do we need another recreation area in Dade County? I invite you to remind yourself of the reasons people come to south Florida to live and to spend their vacations. They come because it is an area of beauty, where they can relax on white sands, under green trees; where they can swim in clean waters and watch colorful inhabitants of the reefs; where they can sail boats and catch fish. We are in danger of creating the enormous folly of providing places for people to sleep by occupying the areas these same people come to see, and by destroying the things they come to do. Dade County must expand its housing and its hotels if more people are going to live and visit here, but we must also expand our recreation areas if the same attractions are to be offered in the future.

Let me remind you of the statistics of world population growth. The present world population is over 3 billion people. It is doubling every 35 years, and by the year 2000 we will have 6 billion people. In some areas, including our own, the rate of increase is even faster. Dade County is one of the most rapidly growing regions in Florida, which is one of the most rapidly growing states in the United States. The population of Dade County in 1965 was estimated at 1,115,000 people and the official estimate from the Dade County Planning Commission is that there will be 2.5 million people in Dade County and 4.5 million people for the Gold Coast in 1985. If you think you are crowded now, if you look back with nostalgia to the open spaces and the light traffic of years past, if you are frustrated and annoyed by the crowds which you see around you in Dade County, think what it will be like when there are twice as many people. The General Land Use Master Plan for Dade County said that there was a serious shortage of park and recreation areas for Dade County in 1966. What will we do in 1985 when there are 2.5 million people, and in the year 2000 when there may be over 4 million people? Unless we provide recreation areas now we will never have them.

The first value of Islandia, therefore, will be to provide a badly needed recreation area.

The second use of Islandia will be to preserve an area of beauty and uniqueness. Beauty is in the eyes of the beholder, but few will deny that the Islandia area is beautiful. What can we say about its uniqueness? Geographically Dade County is in the temperate zone, ecologically it is in the tropics. The weather is tropical, our trees are tropical, our animals are tropical. The cause of this is the Gulf Stream, whose warm waters bring us our weather and our animals and plants. The tropics is a fascinating area. A small piece of it should be

available to all the people of the United States; Islandia is a piece of the tropics.

I have heard it argued that we already have an enormous public use area, Everglades National Park, in our immediate neighborhood, and that to add another piece of the same, a tiny park like Islandia, is pointless.

But Islandia is different from Everglades National Park. It is different from any other park or area open to the public, not only in Florida but in the whole United States. Its aquatic animals and plants belong to what the ecologists call the West Indies Province. The aquatic animals and plants of Everglades National Park on the other hand are typically like those of the Gulf of Mexico. The existence of Everglades National Park, important as it is to the people of this country, is not a substitute for the protection of Islandia.

Let me illustrate the difference between Everglades National Park and Islandia. Some years ago scientists on our staff at the Institute of Marine Sciences listed 116 invertebrate animals that occurred around Soldier Key, one of the Islandia group. Recently others of our biologists counted 239 species of invertebrates from Florida Bay in Everglades National Park. Of the 355 species from Soldier Key waters and from Florida Bay only 15 were found in both places. The plants, the birds, the land animals of the islands of Islandia and the animals of the waters around the islands include some which are rare elsewhere.

Finally, it seems worthwhile to create Islandia as a national monument for the sake of protecting areas outside the region from destructive changes. If Islandia is not preserved essentially as it is now, there may be profound and detrimental changes in Biscayne Bay - changes in the water, in the vegetation, in the bottom communities of animals, in the fishes, in the birds and other creatures. These changes will take place, as they can in any estuary in Florida and elsewhere, if the bottom of the bay and the edges of the bay are dredged and filled, as they certainly will be if the area is developed for hotels and houses. The changes may also take place if a causeway is built across Biscayne Bay from the mainland to Islandia, and if one is built from Key Biscayne south to connect with Islandia, as has been planned.

Such causeways can have detrimental effects in many ways. They can reduce or alter the circulation of the water in the Bay; they can have detrimental effects on the quality of the water - its clarity and purity; they can have detrimental effects on the salinity. By reducing circulation and fostering stagnation of bay water, causeways can have bad effects on the productivity of the Bay and of the small animals and plants that form the base of the food pyramid; they can thus have detrimental effects on the sport and commercial fishes.

I am unable to tell you with precision the magnitude of changes which will take place if causeways are built across Biscayne Bay, and I believe no one is able to do so. But I can tell you with absolute certainty that some changes will take place, and that these changes will be bad for the ecology in the area, and in the long run they will be bad for the people in Dade County and the country as a whole.

A solid fill causeway blocking off Biscayne Bay by running from Key Biscayne to Soldier Key probably would affect the circulation of Biscayne Bay in a profound way, and a similar causeway from the mainland to Islandia would also alter the circulation. A trestle causeway would cause less damage, but to the extent that the building of the causeway altered the bay bottom, the edges of the land and the circulation of the water, it would produce detrimental changes.

In general, tidal circulation of Biscayne Bay is in a southwest-northeast direction. On the flood tide, water goes into Biscayne Bay chiefly over the great flats, which include the "safety valve" between Biscayne Key and the Ragged Keys. The water also flows through such channels as Government Cut, Bear Cut, and those between the Keys, such as Caesar's Creek and Angelfish Creek. The amount of water which enters south Biscayne Bay through Government Cut and Bear Cut, and especially through the passes in the southern end of the Bay, is small compared with the amount that goes over the flats. If the flow across the flats is blocked, a great deal of the flushing that takes place in Biscayne Bay would be eliminated, and major changes would take place in the circulation, which would be restricted to the now minor contribution by the channels.

Interference with the water circulation pattern of south Biscayne Bay by both or either of the proposed causeways will probably also have a considerable effect upon the salinity. At present the salinity of the waters of the Bay is relatively stable, at about 32 to 36 ppt the waters on the mainland side of the south Bay sometimes fall to about 22-26 ppt during the rainy season. If causeways interfere with the circulation of the Bay there are bound to be greater ranges in salinity, since the amount of mixing with oceanic waters will be less; there will be greater dilution during rainy periods and hypersalinity during droughts.

The effects of high salinity can be extremely detrimental. Research in Florida Bay by scientists at our Institute of Marine Sciences may be helpful in illustrating this. The areas of Florida Bay to the south and east of Flamingo consists of a series of basins isolated from one another by mud banks. As you go over these in a boat you cannot see them because they are hidden by the water, but if you were to lower the water about a foot the basins would emerge. The first of these, just southeast of Flamingo, consists of Snake Bite and Jimmie's Lake. The next one is Whipray Basin just below Dump Key. There is another basin in the area west of the Bogies, followed by Blackwater Sound, Barnes Sound and Card Sound. These relatively isolated basins have almost no tidal circulation and they are subject to high rates of evaporation. As a consequence, in the westerly part of this area, in Snake Bight and Jimmie's Lake, the salinity of the water becomes 70 ppt during the dry season, which is twice as high as that of the water of the open sea. This extraordinarily high salinity is toxic to nearly all the animals of the region. The plants die back, and this permits wave action to stir the bottom and cause extreme turbidity.

The area becomes virtually a biological desert. At normal oceanic salinities, 35 to 40 ppt species of invertebrate and vertebrate animals have been counted in Jimmie's Lake. When the salinity rises to 70 ppt this fauna is reduced to two species of fishes, and these in small numbers. Angling is useless in the area at such times. It has been noted by Dr. William Robertson, Biologist of the Everglades National Park, that in this area no birds occur at such times of the year either, so the effect moves all the way up the food chain.

In Florida Bay areas where the salinities become so high, the opposite effect can also occur: heavy rains can pour fresh water into the basins and lower the salinity quickly. At such times heavy mortalities may take place among some animals. Those which cannot tolerate low salinities run if they can, or die if they are unable to run.

By the same mechanism, it is highly likely that if the circulation of Biscayne Bay were altered so that the salinity became markedly higher, the numbers of species of animals and the total quantity of animals and plants would be greatly reduced. We could expect fewer grass shrimp, fewer isopods, fewer pink

shrimp, fewer molluscs - all of which comprise so much of the important food of fishes.

One of the biologists of the Institute of Marine Sciences reports to me that there used to be a luxurious growth of sea vegetation in the area of Biscayne Bay just south of where Julia Tuttle Causeway now runs. This growth of vegetation was there even after the Bay was badly polluted, but the reduction in water flow resulting from the building of the causeway apparently has destroyed the vegetation. This eliminates the cover for forage animals and for the valuable fishes. In place of the vegetation, the area is covered by soft sediments. In the years following the disturbance of the north Bay by dredging and filling, and by pollution, low areas have filled with fine sediments and the deepened channels have made the tidal currents swifter. All of this has caused greater turbidity in the Bay.

Interference with the current system in Biscayne Bay might also lead to increased pollution. A lack of flushing would make the area a stagnant pool. Anything put into the Bay - insecticides, dead and decaying plants, sewage - would stay there. A few years ago we had a badly polluted north Biscayne Bay. The people in the area had the foresight to demand pollution control, and the consequence now is that the Bay is relatively clean. One of the most useful lessons of this, however, is that even now, when pollutants are not being thrown in the north Bay in any quantity, the area still is suffering from some of the effects of the pollution: turbid water, a scarcity of plants and invertebrate animals, poorer fishing. The lesson is that bad ecological changes are to a great extent irreversible; even after we have learned to correct our mistakes, the effects may linger for a great many years, perhaps forever.

The productivity of Bay bottom rests on the same foundation as the productivity of farmland, that is on the chemical nutrients of the soils. The productivity of Bay bottom is similar to farmland in another respect and that is that it is the top foot or so of soil which is really productive. Dredging may destroy the fertility of bay bottom for years: if the top foot of the bay bottom is removed or covered the fertility is destroyed.

The area around Islandia is to some extent a spawning area for marine animals, but improper emphasis has sometimes been made of this point through lack of information. It is true that many invertebrates spawn in the waters around Islandia, but of the game and commercial fishes and invertebrates, probably only the spotted weakfish uses the Islandia region as a spawning area. Thus it is not proper to speak of Islandia as an important spawning or breeding area. Rather, the ecological importance of the area is as a nursery ground. After spawning takes place, usually in offshore regions, animals like the pink shrimp, the blue crab, the pilchard, the redfish, and a great many other fishes come into the area for protection and food. The grasses, sponges and seafans provide a haven for these animals, and a substrate for the food organisms on which they feed.

Changes in the ecology of Biscayne Bay will have an adverse effect on sport fishing. The existence of sport fishes depends on their food, and this starts at the bottom of the food chain with the nutrients and the plants. Even small changes in Biscayne Bay will affect these links in the chain and eventually will reduce the number of game fishes. In extreme cases these changes might eliminate the fishing for certain species. Among those likely to be affected are mangrove snappers, grunts, snook and seatrout. If the numbers of forage fishes are greatly reduced, the schools of Spanish mackerel which still provide fishing in the Bay will no longer have any reason to come in.

There is still some commercial fishing in Biscayne Bay. Some mullet, along with a few other fishes captured incidental to mullet fishing, stone crabs and lobsters are captured. There is, however, a valuable commercial fishery for bait shrimp, which is important to the angler. The bait shrimp fishing has been the subject of controversy many times. It is the opinion of most professional conservationists that this fishery, properly controlled, is not operating contrary to good conservation. It exploits the resource not otherwise used by man, by gear not harmful to the environment. Its loss would be unfortunate, especially to the angler.

A Biscayne Bay causeway might increase hurricane flood danger to parts of Dade County. The flats south of Key Biscayne are called the "safety valve" for a good reason: it is over these flats that water can escape from the bay after being piled up by storm winds. If water were to enter Biscayne Bay through the channels and could not escape over the safety valve, this might produce serious flooding along the mainland.

If Biscayne Bay water became super saline, highly saline waters along the mainline shore of the Bay could aggravate problems of salt intrusion into our fresh water supplies.

There are certain basic principles which we must apply in evaluating a controversy like this one. Unless these principles are stated and understood fully, then the argument takes place in a vacuum.

The first of these principles is that conservation of natural resources is for the use and benefit and employment of man and for no other purpose. When we conserve stocks of fish, it is not for the sake of the fish it is for the sake of man who catches them, either for employment or for food. Nothing can obscure the issue here more than to say that when Islandia, or any other such area, is set aside for public use a choice has been made to the detriment of man and for the benefit of the birds and the fishes. Of course this is pure nonsense. Such a statement may be made through malice or through ignorance, but whether from one motive or the other the result is a damaging obscuring of the facts, and the basic fact is that recreation areas are put aside for the enjoyment of man. If the enjoyment of man involves the saving of birds, fishes and alligators, this is merely incidental. We are not proposing to put aside Islandia for the sake of the birds or for shrimp or for the copepods, not for the sake of you and me, and for our children.

The second basic principle which we must understand before the issues become clear is that changes in the ecology of an area by man are nearly always detrimental. It is extremely rare that we can improve conditions in this kind of an ecological circumstance, and any change that we propose to make in Biscayne Bay is likely to be a bad change. It can be a large bad change if we are careless: it can be a negligible change if we are wise. It is unrealistic to expect to have no changes in areas where so many people live, but it is our responsibility to minimize these changes, and to minimize the damage that always accompany change.

The third principle is that changes in the ecology of such an area are nearly always irreversible. Any mistake we make is likely to be permanent, and therefore we cannot afford to try experiments on the ecology of Biscayne Bay. If there is reasonable doubt as to the outcome, we must take the conservative position. If this position is later shown to be too conservative, we can still proceed with the changes. If our fears are justified, and the alterations prove to be disastrous we can never go back to the original state of nature. We

cannot attempt any kind of ecological Russian roulette, since if we make one mistake we will fire a bullet into our community brain.

We should occasionally ask ourselves who our gods are, not only our personal and individual gods but our collective and community gods. What is our ultimate aim and purpose as human beings, as lords of the universe? Sir Julian Huxley says: "Surely it isn't just power. Surely it isn't just to eat, drink and be merry, and to say, 'Well what has posterity done for us? To hell with posterity'. It isn't just mere quantity of possessions or mere quantity of people. Nor is it just preparation for some rather shadowy after-life. I would assert that it must be to hold in trust, to conserve and to cultivate resources of the earth and the resources of our own nature. And so our aim should be to increase the richness of life and enhance its quality".

We have before us in the Islandia issue a magnificent opportunity to fulfill this aim, to increase the richness of our lives and the lives of those who will inherit our earth. We do not have the right to throw away forever the chance of preserving a small part of this earth, given to us in trust.