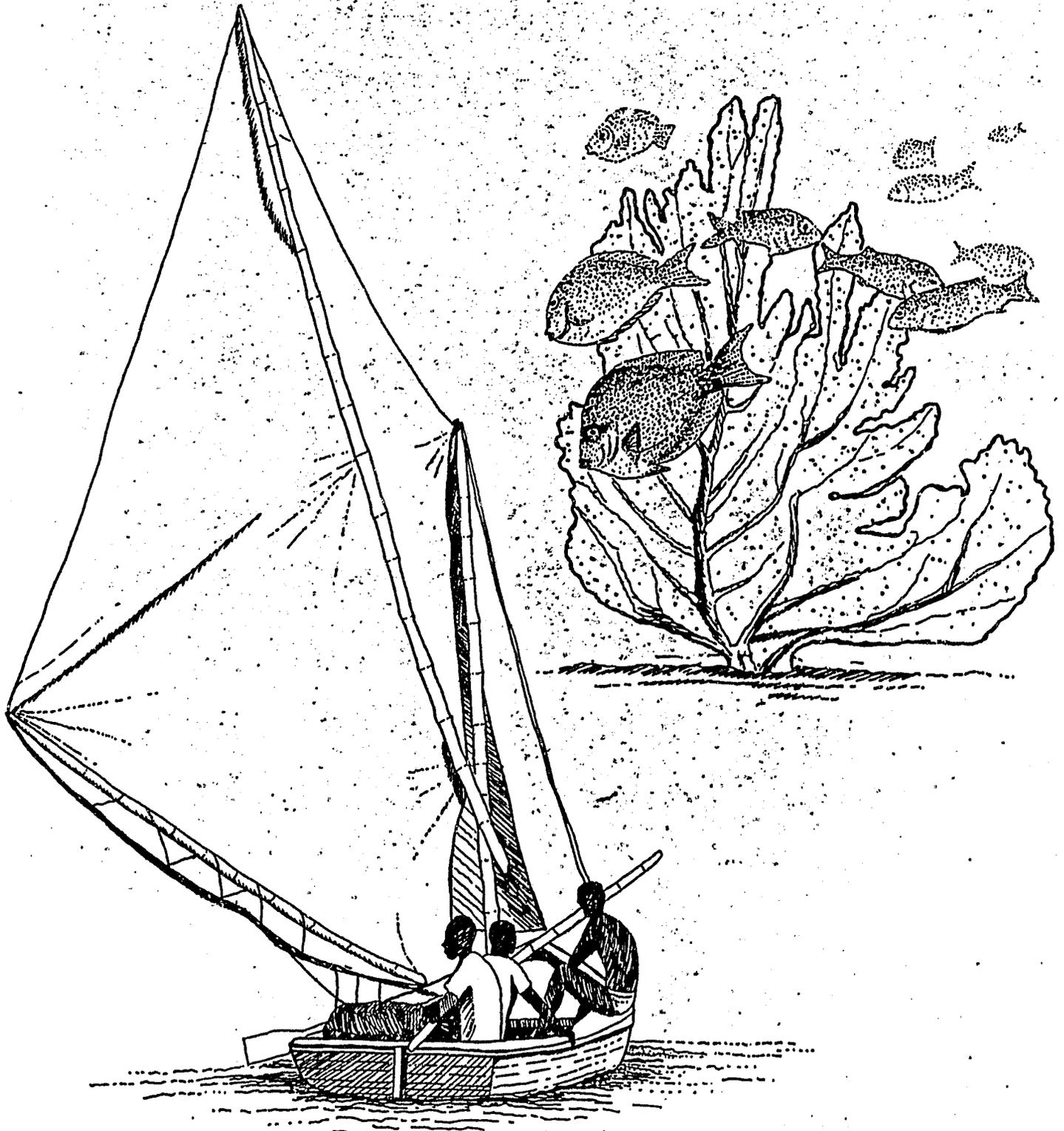


Action Plan

LES ARCADINS NATIONAL MARINE PARK

Haiti

U.S. Agency for International Development



World Wildlife Fund

Wilcox Associates

HAITI

**PROPOSED
LES ARCADINS NATIONAL MARINE PARK
DRAFT ACTION PLAN**

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**For the United States Agency for International Development
Bureau for Latin America and the Caribbean
and the USAID Mission to Haiti**

MAY, 1989

**USAID Grant Number
LAC-0605-G-SS-7041-00**

**DRAFT ACTION PLAN
LES ARCADINS NATIONAL MARINE PARK**

TABLE OF CONTENTS

FOREWORD	i
EXECUTIVE SUMMARY	iii
MAJOR FINDINGS AND RECOMMENDATIONS	1
I. SETTING	1
<u>Haiti</u>	1
<u>Les Arcadins</u>	1
The Sea	1
The Land	8
The People	9
The Tourist	12
<u>Pressure on the Marine Resource</u>	14
II. STATE OF HAITIAN TOURISM	14
<u>Overview</u>	14
<u>Tourist Origins</u>	16
<u>Haitians as Visitors</u>	17
<u>Vacationers to Haiti</u>	18
<u>Revenues</u>	19
<u>Tourism Generated Employment</u>	21
III. STATE OF TOURISM IN THE LES ARCADINS REGION	21
<u>Tourist Activity Between 1980 - 1987</u>	21
<u>Regional Beach Hotels</u>	24
Characteristics of Beach Hotels	24
Employment	25
Revenues	26
<u>Tourist Contribution to the Fishing Industry</u>	27
<u>SCUBA Diving and Snorkeling: History and Promise</u>	28
IV. REBUILDING HAITIAN TOURISM	29
V. PARK ESTABLISHMENT ISSUES	31
<u>Legal Status of Les Arcadins</u>	31
<u>Park Management Options</u>	31
Government of Haiti (GOH)	31
Non-Governmental Organization (NGO)	32
<u>Potential Funding Agencies</u>	33
United States Agency for International Development (USAID)	33
Food and Agricultural Organization (FAO) and the United Nations Development Program (UNDP)	34
Other Funding Agencies	35

<u>Park Establishment of the Park Rules</u>	35
Existing Marine Resource Regulations	35
Future Regulations	37
Enforcement	37
<u>Public Awareness and Environmental Education</u>	37
Audience	38
The Action Plan Public Awareness and Environmental Education Program	38
 VI. STEPS TOWARDS PARK ESTABLISHMENT/YEARS ONE AND TWO	39
<u>Approach</u>	39
<u>Organizational Stage</u>	39
STEP 1 Convene a Les Arcadins Marine Park Advisory Committee.	40
STEP 2 Adopt the timeline and budget for the park.	41
STEP 3 Arrange for a marine park specialist consultancy.	49
STEP 4 Adopt park objectives and park boundaries.	49
STEP 5 Secure legal status.	50
STEP 6 Arrange for and fund temporary office support/Hire part-time secretary.	50
STEP 7 Hire the Executive Director.	50
STEP 8 Make final arrangements to acquire or lease the Visitor Center.	51
STEP 9 Establish a reference library.	51
STEP 10 Concurrently design modifications to the Visitor Center building and the overall interpretive program.	52
STEP 11 Purchase park equipment.	52
STEP 12 Preparation of promotional materials.	53
STEP 13 Begin renovation of the Visitor Center.	53
STEP 14 Initiate a fisheries program for Luly.	53
 <u>Operational Stage</u>	56
STEP 15 Initiate the interpretive program.	56
STEP 16 Develop the national, international education program.	57
STEP 17 Initiate park management training.	58
STEP 18 Establish a Community Outreach and Development Program.	59
 VII. RECOMMENDED ACTIONS FOR YEARS THREE, FOUR AND FIVE.	61
<u>Initiation of the Research Program</u>	61
<u>Continuation of the Community Outreach Program</u>	61
<u>Continuation of the Interpretive and Training Program</u>	62
 VIII. CONCLUSION	62

FOREWORD

The 1986 Haiti Country Environmental Profile identified four potential marine park and protected area sites that needed further study. They are Baie de Labadie and Baie de Cadrassé on the north coast, Les Arcadins in the Golfe de la Gonâve, Ile à Vache in the Cayes area and the Barradères, Cayemites area on the northern coast of the southern peninsula. Of the four sites, Les Arcadins held the highest immediate potential for park designation because of its proximity to Port-au-Prince, potential for tourism development, local interest in protecting the site, and its reputed diverse, underwater life.

Following a United States Agency for International Development (USAID) Mission-funded feasibility study (Wilcox, 1986) that supported the importance of the site, a two-year collaborative effort was initiated by USAID, to study the area in greater detail and prepare a Draft Action Plan for the establishment of a Les Arcadins Marine Park. The contributing institutions included USAID, World Wildlife Fund, Wilcox Associates, the Haiti Hotel Association, the Villa Creole Hotel, the Kaliko Beach Hotel, the Kaliko Dive Center, American Airlines, and the Agouée Dive Club of Port-au-Prince.

The field work and analysis, performed by a team of specialists between the fall of 1987 and the spring of 1989, provides a solid biological, social, economic and institutional basis for recommending the establishment of a marine park at Les Arcadins, in Haiti. Beyond that, the Haitian people provide the spirit and will to make their first marine park an unqualified success.

It is commonly believed that Haitians must have little understanding of the cause and effect of ecological deterioration because of their present environmental situation. The truth is that they are all too familiar with the consequences of ecologically damaging actions such as overfishing and deforestation. Haitians know that *Tout vèן touche kè*, "Every vein touches the heart"; that is to say, that nature touches every aspect of their lives and is central to their existence. They do need the means, however, to change the course of environmental decline.

The Les Arcadins project team was composed of the following specialists from World Wildlife Fund and Wilcox Associates:

Evelyn Wilcox	Project Director and Institutional Specialist
Augusto Medina	WWF Project Officer and Environmental Education Specialist

Carlos Goenaga	Biologic Survey Team Leader and Coral Reef Ecologist
Vance Vicente	Sponge Ecologist
Reni Garcia	Fisheries Ecologist
Alexis Gardella	Cultural Anthropologist
Thomas Deyo	Socio-economist
Dennis Glick	WWF Park Specialist
Elizabeth Wilcox	Graphic Artist

Two reports were produced: the Draft Action Plan and the Les Arcadins Resource Document. Much of the team's research can be found in the Resource Document, representing a major effort to provide original data on the biological, social, economic, cultural, and institutional aspects of the area. Evelyn Wilcox organized the studies and edited the final documents.

Special thanks go to the USAID Mission in Haiti for their encouragement and interest in the project; to the staff at World Wildlife Fund for their countless hours of work on the project, particularly Carol Baker, Catherine Monaghan, and Deborah Spears. Last but not least, thanks go to Roger Dunwell of the Villa Creole Hotel, who, from the beginning, provided both inspiration and support to the project.

EXECUTIVE SUMMARY

The marine area surrounding the three Les Arcadins islands has the potential to become an important diving area in the Caribbean region. It has a physically predictable environment where climatic conditions permit SCUBA and skin diving activities throughout the year, except during infrequent tropical storms. The water transparency surrounding the three islands is excellent; better than that found in most other marine areas in the Caribbean. The high physical heterogeneity of the substrate allows the establishment and development of both light exposed biota (corals, gorgonians and algae) and cryptic-cave dwelling species. Some deep water (more than 30 m of depth) habitats, generally accessible only to SCUBA divers, are apparently replicated here in very shallow water (5 m) allowing snorkelers to enjoy viewing deep water species in shallow water environments. (See Resource Document, Section 1, Benthic Survey and Section 2, Fisheries Survey for the complete survey findings).

From a conservationist point-of-view, Les Arcadins' uniqueness and biological diversity make it a natural resource worthy of preservation and protection. Furthermore, the establishment of a fish reserve, within the park, would, in the long term, aid in the renewal of commercial fish populations currently in serious decline due to local overfishing. This action would be directly beneficial to the local fishing-dependent human population and, from both a local and a developmental perspective, important in mobilizing local participation and encouraging the practical interest of various Non-Governmental Organizations (NGOs) on the Haitian scene.

The immediately adjacent fishing community of Luly is focused around a core of full-time fishermen who are seriously committed to maintaining their livelihood, for themselves and the next generation. They are already aware of the long-term negative effects of overfishing, but find themselves helpless to change the situation, due to primitive fishing methods, scarce capital, market domination by local and Port-au-Prince fish speculators, and increased pressure on the marine resource from local and opportunistic part-time fishermen.

Les Arcadins is a fortuitous choice for a marine park in Haiti because it already has an existing fisheries cooperative with whom park management can work. The existence of a "real" community organization ("real" in the sense that it exists a priori to outside funding) and an honest and respected community leader such as the current president of the cooperative is rare in rural Haiti, and thus suggests fertile ground for the

development of a marine park in concert with the local community.

Although the overall decrease in tourists to Haiti, in the past few years, is due to unpredictable and uncontrollable factors such as the unfavorable AIDS publicity and the volatile political situation, the establishment of a marine park would serve to attract what many consider to be the fastest growing subsector of tourism in the Caribbean, the SCUBA diving and snorkeling industry, and stimulate investment in the local tourism infrastructure. According to visiting and local divers, diving in Haiti is good. The management at Kaliko Dive Center, in the vicinity of Les Arcadins, does mostly repeat business and considers Les Arcadins competitive with other Caribbean island sites. With sufficient promotion abroad, presumably other tourists would follow.

Like other Caribbean islands, one of Haiti's major tourist attractions is its beaches, and this strip of coast is the most accessible, most comfortable in terms of amenities and among the most beautiful sites in the country. During peak tourist years, the local economy received an estimated \$1.5 million dollars annually from hotel wages and fish/seafood sales. Total hotel and direct and indirect employment generated from these tourist businesses was estimated to be about 2,200 Haitians. Government revenues were approximately \$1 million from room and departure taxes. Annual foreign capital into the country, less the hotel wages and fish and seafood purchases and government revenues, was an estimated \$21 million to \$31 million, in the peak tourist year. This inflow of cash was further distributed throughout the region for necessary goods and services and other investments.

Clearly, the Les Arcadins region has contributed substantially to the Haitian economy. Therefore, national plans for revitalizing the tourist industry should include this region if Haiti is to realize the full economic benefits of tourism.

LIST OF FIGURES

Figure 1	Map of the Caribbean	2
Figure 2	Geophysical Map of Haiti	3
Figure 3	Locations of Les Arcadins in the Golfe de la Gonâve	4
Figure 4	Aerial Photograph of Ti Teal	5
Figure 5	Aerial Photograph of Lighthouse Island . . .	6
Figure 6	Aerial Photograph of Ile de Sud	7
Figure 7	Hotels of the Les Arcadins Region	13
Figure 8	Timeline - Les Arcadins Marine Park	42
Figure 9	Budget - Les Arcadins Marine Park	46

MAJOR FINDINGS AND RECOMMENDATIONS

I. SETTING

Haiti

The country of Haiti is located in the mountainous, western portion of the island of Hispaniola in the Greater Antilles, bordered on the north by the Atlantic Ocean, to the west and south by the Caribbean sea and to the east by the Dominican Republic (Fig. 1). The Les Arcadins area is located close to Port-au-Prince, the nation's capital, and off the western coast of Haiti in the Golfe de la Gonâve (Fig. 2).

In contrast to the declining resource value of its forests and agricultural lands, Haiti's coastal and marine environment appears to be in relatively good condition (CEP, 1986). Well developed coral reefs fringe long stretches of coastline. (Haiti has 1500 km of coastline and an estimated insular shelf of 5000 km²). Offshore barrier and atoll-like reefs, and "walls" of coral, along the shelf edge, although largely unexplored, are reported, by some recreational divers and fishermen, to be productive, sometimes spectacular areas. Four large offshore islands: Ile de la Tortue, La Gonâve, Grande Cayemite and Ile à Vache and many smaller islands, contribute to the richness of the nearshore ecological system.

Les Arcadins

The Sea

The three small islands of Les Arcadins are the only significant land outcrops off the west coast of Haiti, up to the platform of Ile de la Gonâve. They are situated on a bank about 5 km wide that ranges in depth from 13 to 19 m (Fig. 3). The platform surrounding this bank is generally deeper than 21 m.

The closest island to shore, Ti Teal, or North Island, lies about 3.6 nautical miles in a southerly direction from Kaliko Beach. It is 110 m long and 70 m wide (Fig. 4). The largest of the three islands, Lighthouse Island, is 425 m long and 125 m wide and lies .5 nautical miles southwest of Ti Teal (Fig. 5). It derives its name from the presence of a working lighthouse on the northwestern tip of the island. Ile de Sud or South Island is 250 m long and 200 m wide and lies .2 nautical miles south of Lighthouse Island (Fig. 6). The water depths between the coast at Kaliko Beach and Les Arcadins range between 10.7 and 31.0 m.

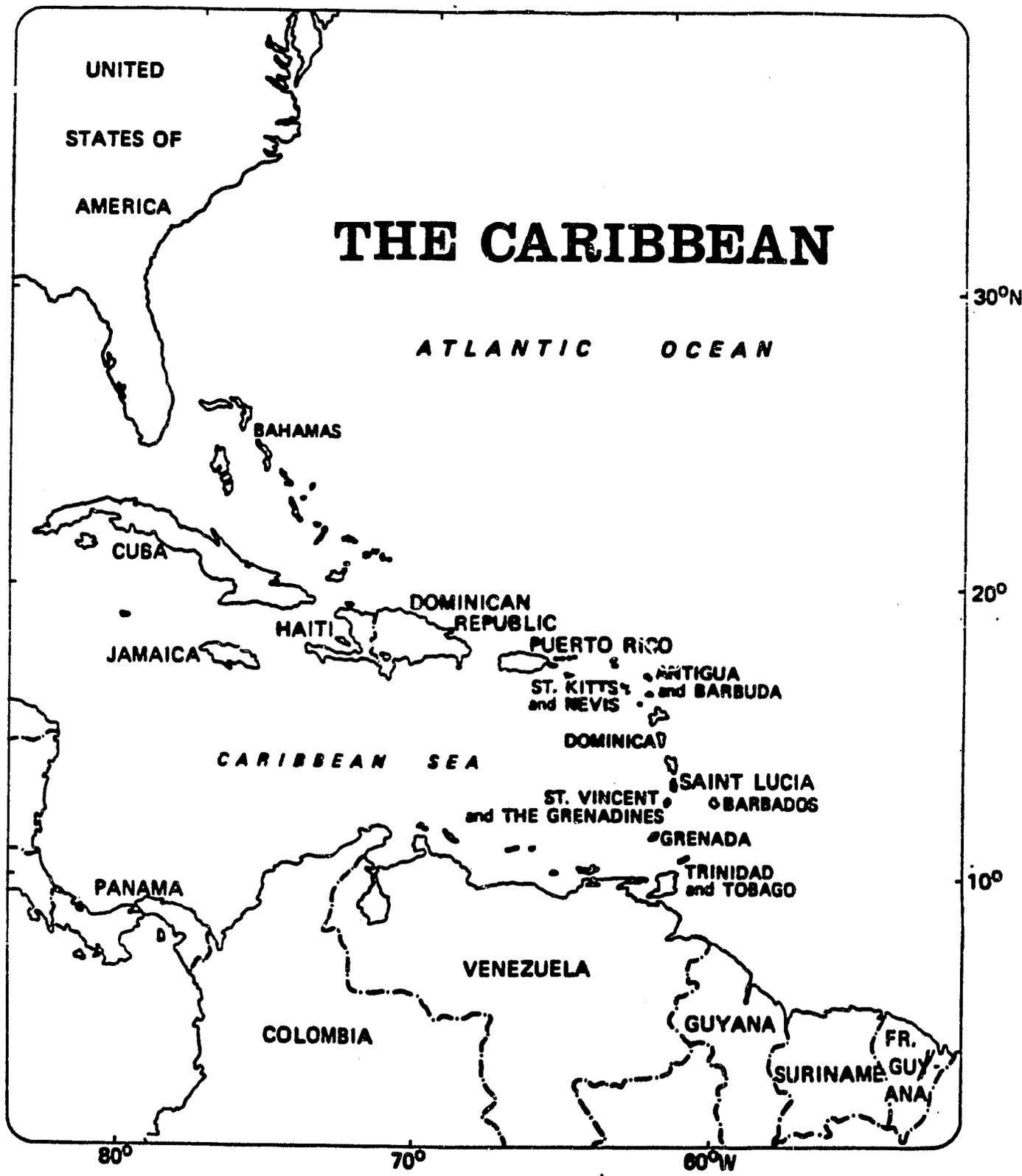


Figure 1 Map of the Caribbean

Mercator projection prepared by Defense Mapping Agency
Hydrographic/Topographic Center. Soundings in meters.

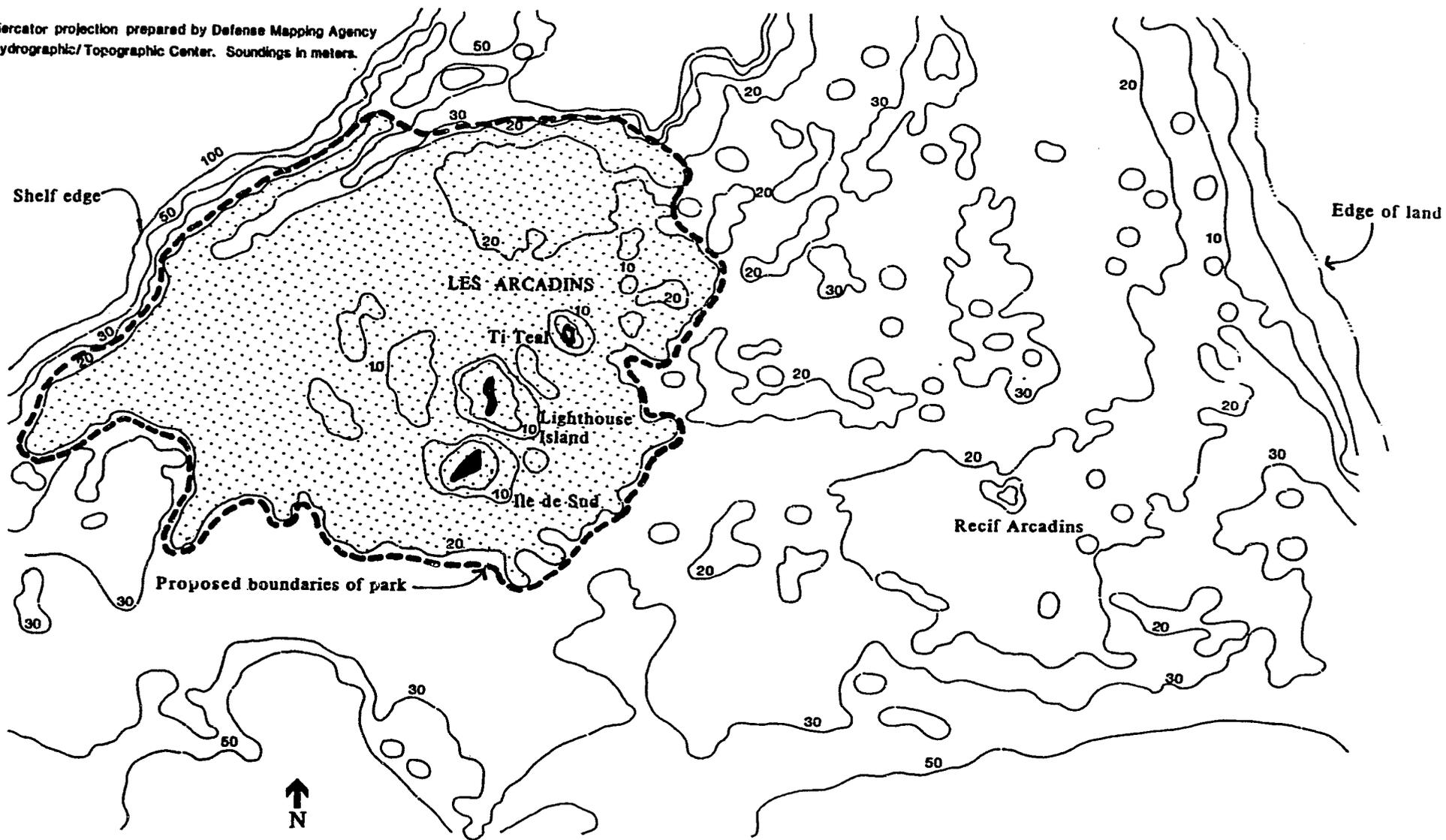


Figure 3. Location of Les Arcadins in the Golfe de la Gonave



Figure 4. Aerial Photograph of Ti Teal

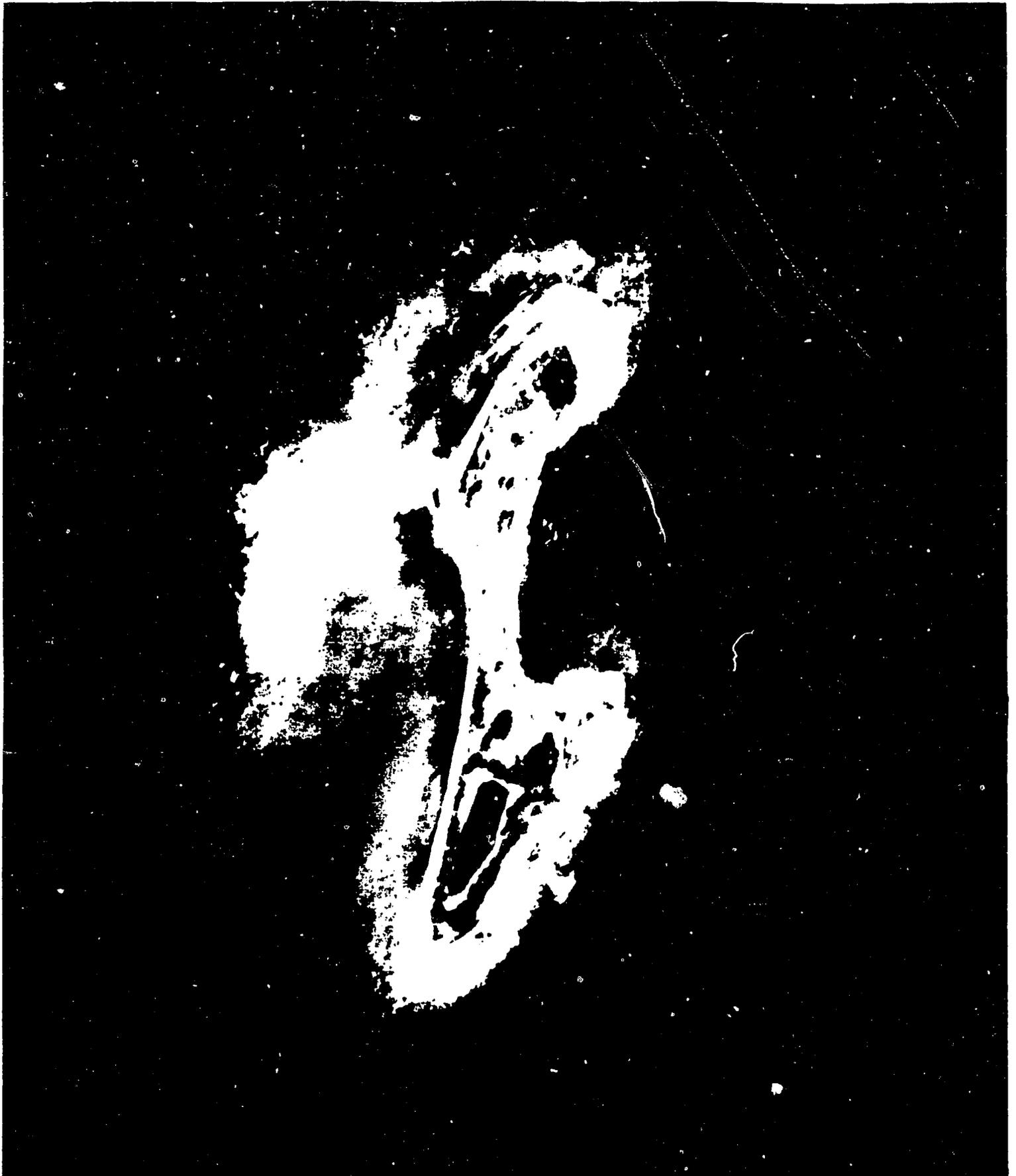


Figure 5. Aerial Photograph of Lighthouse Island



Figure 6. Aerial Photograph of Ile de Sud

Les Arcadins are surrounded by extensive coral reefs. These reefs possibly arose when the Haitian platform became inundated after the last glaciation. The islands lie between the alluvium-limestone formations to the east, along the coast, and the limestone formation of the Ile de la Gonave, to the west (Fig. 2).

The western waters of Haiti are influenced by two major currents: the Antilles Current to the north and the Caribbean Current to the south. The Windward Passage, one of the deepest and widest connections between the Atlantic Ocean and the Caribbean, may also influence the physico-chemical properties of the region. Local currents near Les Arcadins have not been studied in any detail, but personal observations suggest that wind-induced currents and tidal flows may affect the distribution of epibenthic populations within its natural systems.

No studies of water transparency surrounding Les Arcadins were available but good cover of turtle grass (Thalassia testudinum), down to depths of 19-20 m, indicates that clear water conditions prevail. This deduction is partially based on the study of the correlation between water turbidity, as measured by Secchi disk readings, and the depth limit of turtle grass Thalassia testudinum (Vicente, 1982) and supported by the bathymetric range and morphology of Montastrea annularis, a light sensitive species, on Les Arcadins reefs. Thalassia, requiring adequate penetration of sunlight into the water column, is the most extensive benthic organism surrounding the three islands.

The rivers that empty, closer to Port-au-Prince, probably do not influence the natural environment of the islands, in view of their small size and distance from the site. However, there are at least five major rivers that discharge close to Les Arcadins. Some are dry during the dry season (e.g., Riviere Seche), but may be capable of impacting Les Arcadins by introducing terrestrial sediments into the ocean, near the area, during the wet season (personal observations Goenaga, 1988).

The Land

Nearby, the fishing village of Luly lies on the coast, facing Les Arcadins to the west, and with arid, deforested foothills and low-lying mountains at its back. The land immediately surrounding Luly has little agricultural value except during the rainy season, which has been diminishing in intensity and length for the last five years. In addition to the nearby beach hotels of Kyona and Kaliko, much of the land surrounding Luly, especially along the beach front, is owned by wealthy Haitian elite. The beach front areas are parcelled out into residential sites for beach houses, while larger tracts of land immediately behind and to the northwest of Luly are held by

Port-au-Prince businessmen. At the present time, most of these larger tracts of land are divided into smaller plots which are rented or sharecropped by the local inhabitants for agriculture and animal husbandry. Weather conditions permitting, the local people grow different varieties of melon for sale and millet for their own consumption, but use these lands primarily for goat grazing.

This combination of arid lands with minimal agricultural value and a shoreline dotted with both beach hotels and private beach houses characterizes the area from Luly northwest to Montrouis and beyond, to St. Marc. The area southeast of Luly, stretching to Cabaret (formerly Duvalierville), is a fertile plain almost completely irrigated through the interventions of the Haitian State and various international organizations, including USAID. This area produces substantial amounts of plantain, bananas, tomatoes and other table vegetables. Although there are relatively few large tracts (100+ ha) of land held by one owner, there are numerous smaller holdings belonging to Port-au-Prince businessmen which are sharecropped by the local inhabitants. The largest regional market is the one in Cabaret which takes place twice a week. On alternate days there are more localized markets in many of the roadside communities, including Williamson, Arcahaie, Sainthard, and Montrouis.

The People

It is difficult to estimate the population of Luly. Based on the number of full-time fishermen and people working in fishing-related activities and on general population trends for rural Haiti as a whole, a reasonable estimate would be approximately 400 households, or about 1,500-2,000 individuals, with at least 50% under the age of 18. By local consensus, the demographic nucleus of Luly is the approximately 300 full-time fishermen and their families. (These numbers, as well as others cited in the text that are not otherwise referenced, were provided by the Luly Cooperative.) At the time of the field work they were the only figures available for the area. They were collected by the cooperative for its own purposes and did not seem to be biased in one direction or another.

The economic focus of Luly is the collection and distribution of fish and other marine products. In addition to fishing per se, many, if not all, economic pursuits in Luly are related to some aspect of the fishing industry. These include the purchase and marketing of fish, the cleaning and preparation of fish for wholesale buyers, and the artisanal production of fishing nets, traps, sails and boats.

Peripheral to these fishing activities are agricultural and livestock production, domestic service in the private beach houses and hotels, agricultural day labor, and petty

entrepreneurial activities such as the sale of shells and crafts, and the providing of occasional boat trips for tourists. These are almost never full-time pursuits for any one individual.

Following the same pattern found all over Haiti, individuals in Luly pursue a livelihood strategy of minimizing economic risk by maximizing their options; engaging in a variety of economic activities or "not putting all your eggs in one basket". Even a full-time, fully-equipped fisherman will also have various economic activities on the side, such as garden cultivation and occasional wage labor when the opportunity presents itself.

The population of Luly also includes a number of displaced families from other areas, probably numbering no more than 10-15% of the total population. These displaced people come primarily from the island of La Gonâve and the area immediately surrounding St. Marc. The island of La Gonâve is almost completely deforested and frequently drought-stricken. During droughts many La Gonâve families, dependent entirely on fishing for their livelihood, move temporarily to Luly to be close to a major fish marketing center and to avail themselves of the relatively larger range of economic opportunities. When the droughts are over, most of these families move back to La Gonâve, but there are always several families who stay and make Luly their home. Likewise, the area around St. Marc is severely deforested, and during dry periods, these people must depend, to a large extent, on fishing. In the last three years or so, St. Marc fishermen have been increasingly frequenting the Luly fishing territories and marketing their fish in Luly. Some of these fishermen have moved their families to Luly permanently. There are also a few individuals who have come from areas further afield (such as Logane, Miragone, Gonaives), seeking jobs in the tourist hotels and eventually making Luly their permanent home.

Luly is a highly stratified community. Its internal ranking is gauged primarily by access to economic resources, with socio-cultural characteristics tied directly to the level of economic standing. The top of the socio-economic ladder in Luly is that group of people engaged in the wholesale distribution of fish, or the *spekilatè*. The speculators buy large quantities of better quality fish and high-priced lobster, conch, crab, and shrimp to sell to the beach hotels, local elite, and Port-au-Prince retail and wholesale dealers. Some of them are directly linked to wholesale fish exporters in Port-au-Prince, while others are more independent, selling through a variety of channels. Just below them on the socioeconomic ladder are those successful, full-time fishermen, who have a full range of fishing gear and derive the major portion of their income from fishing. More-or-less on a par with these fishermen are the various *bos*, or skilled craftsmen, manufacturing boats and related fishing gear, and the *madanm sara*, or wholesale market women. Next are the relatively less-successful full-time fishermen, the agents of the *spekilatè*

(those who actually buy the fish on the beach), and people in the permanent employ of the beach hotels. Further down are the *marchans*, or local market women, who buy lower quality fish on the beach for resale on the nearby markets, the less-skilled *bos*, and domestic workers. At the bottom are the full assortment of part-time fishermen with minimal fishing gear, the displaced families from other areas, the women and men who clean and prepare fish for the wholesalers, and the many who find employment wherever and whenever they can.

It is important to note that the lower range of this socio-economic ladder is characterized by people who must shift their economic activities according to the most advantageous opportunities that present themselves. For example, the so-called "part-time" fishermen rely on fishing when other sectors of the economy are not viable. A drought, the loss of access to agricultural lands, the lack of day labor, the need to sell off livestock, and so on, are all situations where, typically, men will turn to fishing to take up the slack. Needless to say, these men have restricted access to fishing gear and limited experience and knowledge of the marine environment. Thus they are at a double disadvantage, both in relation to full-time fishermen and to others who have stable economic pursuits.

The primary rural administrative authority for Luly, the *Chef de Section*, is situated in Arcahaie. The only development project that has directly affected Luly is a potable water system funded by Banque Internationale de Développement (BID) with voluntary community participation. Luly received water at its recently-built public water fountain sometime in August, 1988. The parish priest and the main Catholic Church in the area are in Sainthard. There are countless independent Protestant sects dotting the entire area, but in Luly, the people are predominantly Catholic.

Luly's proximity to Port-au-Prince, its easy accessibility from Route Nationale #1, and the neighboring presence of numerous wealthy Haitians and foreigners, have contributed to the importance of Luly as a seafood market center. While there are many other centers of fish distribution in Haiti, notably St. Marc, Gonaives, Anse Rouge, Cap Haitien, Aquin, Les Cayes, Jeremie, and Dame Marie/Anse d'Hainault, none have the market advantages of Luly. The consequent proliferation of fish buyers of all sorts has created a sellers' market where no fish goes unsold and where prices are relatively profitable. With the exception of Luly and Dame Marie, what little information exists indicates that most of the other fishing centers are dominated by selected wholesalers and their agents through their control of transportation of fish out of the area. These market conditions create situations where the fishermen are at a distinct price disadvantage, as much as 1:100 in the wholesaler's favor in at least one case studied (CORERE 1979:5-6).

By situating Luly in its own socio-geographical context and comparing it to other fishing centers in Haiti, one can quickly perceive that Luly is not a "normal" fishing village as commonly found in Haiti. It is neither isolated, nor severely poverty-stricken, nor dominated by a single individual or social group. The wider range of opportunities to sell fish, together with the availability of other peripheral economic options, results in a greater internal socio-economic differentiation than generally found in other fishing communities. In sum, Luly cannot be treated as a homogeneous, monolithic category of people who will react uniformly to events, constraints or pressures applied from the outside. They are aware of events occurring outside of their area, are familiar with prominent people in the world of politics and commerce, and even have knowledge of the fishing industry outside of Haiti. The activities of the State and various international development agencies in their area have also made them familiar with the nature of the "development" sector in Haiti, both from the point-of-view of project "beneficiaries" and administrators, both Haitian and expatriate.

The Tourist

The Les Arcadins area has been a recognized tourist beach area in Haiti since the late sixties. Both the Ibo Beach and Kyoná Beach resorts have been in operation for nearly three decades. At present, the Les Arcadins region includes eight hotels and resorts and encompasses the area bounded by Ibo Beach at the village of Simonette to Xuragua Hotel at the village of Deluge (Fig. 7).

The region's most successful period began in the mid-1970's and flourished until 1985. During this time six resorts opened in the area, including the industry giant, Club Mediterranean, in 1980. The presence of this world-famous chain resort provided Haiti, as well as the Les Arcadins region, with sound recognition as a legitimate Caribbean resort destination. The last resort to open in the region was the Moulin Sur Mer which began operation in 1985, at the close of the boom tourist period.

The selection of the Les Arcadins region by tourists bound for the Caribbean, results from its fine beaches, its ease of access, the marine life (i.e., Les Arcadins, La Gonáve island), and its proximity to Port-au-Prince.

The islands are a recreational feature of the resort operations of many of the hotels in the region. Nearly everyone staying at the resorts, nearest Les Arcadins, makes a trip to the islands via either a hotel operated boat or a hotel-associated, local fisherman's boat. In particular, dive packages were a growing element of Kaliko's business in the mid-80's. The Kaliko Dive Center offers SCUBA and snorkeling trips to Les

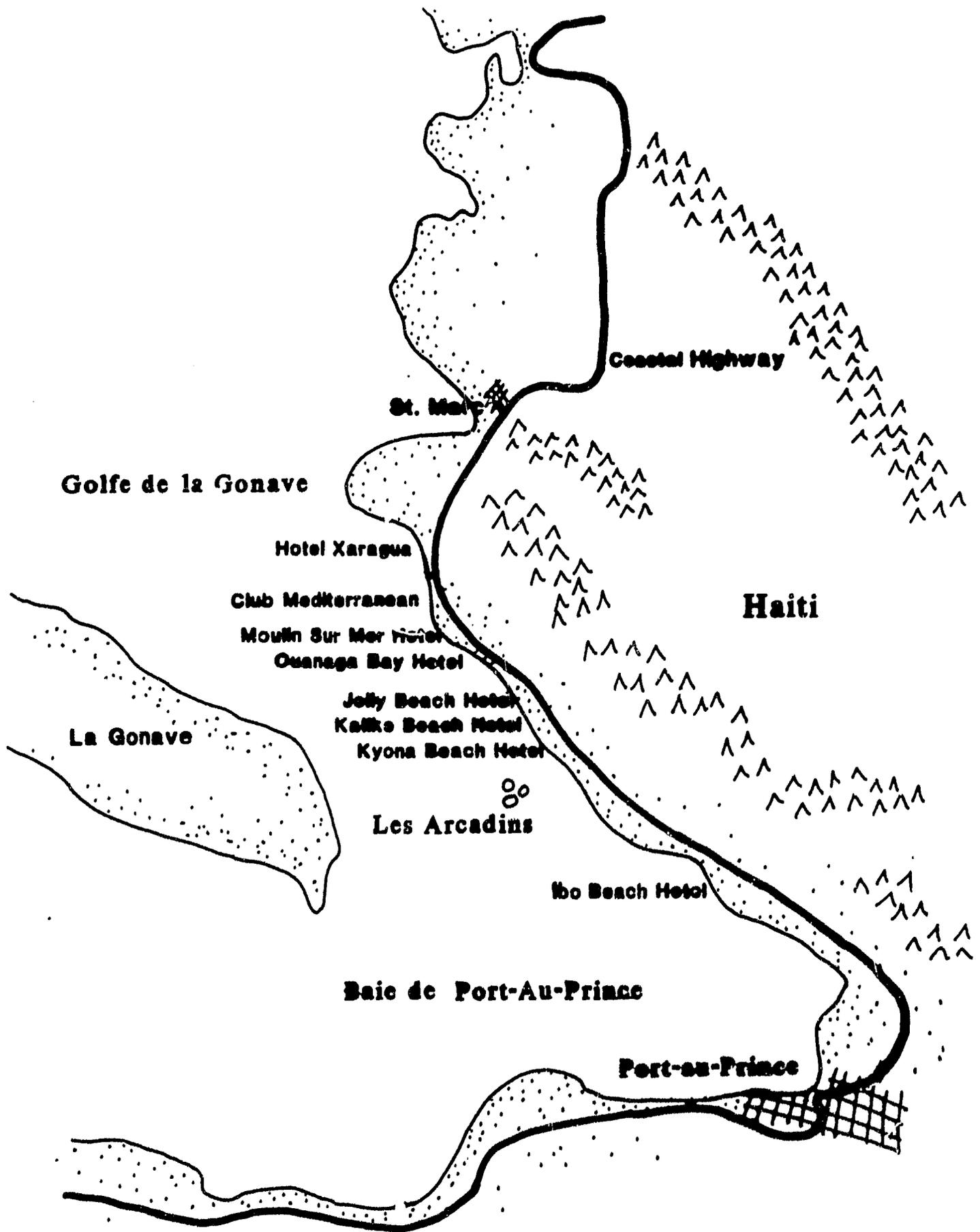


Figure 7. Hotels of the Les Arcadins Region

Arcadins almost daily. During the peak season, in the mid-1980's, about 25% of those staying at the Kaliko hotel had come exclusively for diving.

Pressure on the Marine Resource

Although Luly's socio-geographic situation provides an advantage to its fishermen in terms of access to market, it also causes increased pressure on the marine resource. First, it brings outside fishermen, i.e. men from areas outside of the Luly fishing community, into Luly fishing waters, thereby increasing the numbers of people dependent on a single marine base. Secondly, it forces indigenous fishermen to double their efforts, both because of competition with outsiders and in order to sustain acceptable yields from an increasingly overexploited marine environment.

Due to the primitive nature of fishing technology, this increased pressure is felt in the longer and more frequent fishing sorties necessary to maintain an adequate return. A normal fishing sortie starts at 4 or 5 o'clock in the morning and ends at 3 or 4 in the afternoon, at least three times a week. Furthermore, it is only the well-equipped full-time fisherman who can afford to only go out three times a week. Others must go out more often or alternate with other physically demanding labor, such as agricultural activities. (A full discussion of fishing equipment, methods fishing territories, boat ownership and commercial distribution is found Section 3 in the Resource Document, Appendices I, II, III).

There is also recent evidence of increasing shell and coral collection by those who sell to commercial exporters in Port-au-Prince. The shallow, calm nature of Les Arcadins waters make it a natural target for such collecting operations.

II. STATE OF HAITIAN TOURISM

Overview

Today, travel to Haiti by anyone except business people, Diaspora Haitians (Haitians that left Haiti during the reign of Duvalier), politicians, or consultants appears to be left only to the more adventurous tourist or vacationer. Travel industry representatives report few foreign tourists since 1987. Port-au-Prince hotels cater almost exclusively to business people and Haitian Diaspora. Beach hotels (nearly all in the Les Arcadins region) cater primarily to residents of Haiti on weekend trips to the country.

Such a depressed state of tourism is not easily discernable from a reading of government data since the Office National du

Tourisme data on tourists to Haiti includes everyone that is not a resident of Haiti. These data show a respectable number of tourists continuing to visit the country in recent years.

Data in the Office National du Tourisme statistical reports often do not correlate from one table to another and discrepancies often cannot be isolated. Further, data are compiled from embarkation cards which require all arrivals to state their name, place of residence, birth date, originating country, profession, purpose of visit, and address in Haiti. These cards are not always a true assessment of a visitor's visit nor does it reflect all their destinations in Haiti. As a result, the numbers used in this report, from the Office National du Tourisme, are employed to show an order of magnitude of tourism and do not represent a complete assessment.

The Les Arcadins tourism study defines tourists simply as foreign vacationers. Excluded from the tourist category are business people and Diaspora Haitians vacationing in Haiti. This definition differs slightly from the World Tourism Organization's definition of "leisure tourist" which would include foreigners of Haitian extraction. However, for this report it is most important to isolate the non-Haitian tourists as they historically contribute more significantly to the economy of the resort hotels. Visitors, on the other hand, refer to all non-residents coming to Haiti. Included in this category are tourists (as defined above), business people, Diaspora Haitians, and others.

Even by its own figures, however, government data show a substantial recent decline in the number of tourists visiting Haiti compared to the peak years of 1981 to 1985. Table 1 shows total 1987 visitors of 120,000. While this is about 10,000 more than 1986, it is about 40,000 below the peak year of 1981 and 20,000 below 1985, the last strong year of Haitian tourism. This 1985 to 1987 change represents a 20 percent decline in tourism over two years.

Unfortunately, the field study's estimates on tourists portray an even bleaker picture. By using the study's definition of tourists, a more accurate estimate of tourist decline is revealed. Between 1985 and 1987, Haiti suffered over a 50 percent drop in tourists; from about 40,000 to 18,000. Many of those in the government's 1987 visitor numbers are better classified as business people or Diaspora Haitians rather than bona fide tourists. In effect, only about 15 percent of the Office National du Tourisme's 1987 visitor count could be classified as tourists under our definition; compared to over 25 percent in 1985.

Table 1. NUMBERS OF TOURISTS AND CRUISE SHIP PASSENGERS TO HAITI, 1970, 1975 TO 1987

<u>Year</u>	<u>Tourists</u>	<u>Passengers</u>
1987	121,800	70,500
1986	111,650	84,650
1985	149,650	95,250
1984	144,650	92,550
1983	127,150	96,550
1982	119,450	94,700
1981	158,000	117,850
1980	136,000	159,650
1979	134,100	172,650
1978	111,650	187,550
1977	96,000	186,400
1976	85,900	201,800
1975	79,000	200,400
1970	44,900	42,500

Source: Office National du Tourisme et des Relations Publique, Haiti.

Tourist Origins

Historically, Haiti has received the majority of its visitors from the U.S., Canada, and Europe, as shown in Table 2. Visitors from the U.S. consistently account for the largest percentage and number of visitors to Haiti. American visitors have steadily increased from around half of all visitors in the late 1970's to about two-thirds in 1987.

Europeans contributed significantly to visitor counts in the late 1970's and represented about 20% of all visitors to Haiti. However, the rise in the value of the dollar in the early 1980's led to a decline in European visitors. By 1987, Europeans accounted for less than 10% of all visitors. Canadian visitor numbers have fluctuated from 10 to 15 percent of all visitors from the late 1970's to the present. They have become the second largest contingent since the decline in European visitors.

Overall, European travel to the Caribbean dropped considerably between 1980 and 1985; falling from 962,000 to 800,000. Trends similar to Haiti have been registered by other Caribbean nations such as Barbados, British Virgin Islands, Cayman Islands, and U.S. Virgin Islands. (Caribbean Tourism Research and Development Centre, 1982, 1986)

Table 2. COUNTRY OF RESIDENCE OF ALL VISITORS TO HAITI, SELECTED YEARS BETWEEN 1975 AND 1987

<u>Year</u>	<u>Total</u>	<u>USA</u>	<u>Canada</u>	<u>Europe</u>
1987	121,800	78,300	14,450	9,100
1986	111,650	71,350	14,775	7,950
1985	149,650	89,750	22,100	12,300
1984	144,650	83,250	17,100	12,600
1981	158,000 ^{1/}	69,350	15,500	25,700
1977	96,000	44,600	14,750	21,150
1975	79,000	41,750	9,300	13,200

Note: 1/ Approximately 30,000 tourists this year were classified as Not Specific.

Source: Office du Tourisme et des Relations Publique.

Haitians as Visitors

Diaspora Haitians returning to visit their relatives have become an increasingly larger segment of the visitor counts over the past few years, especially since the overthrow of Duvalier. In 1981, visitors of Haitian nationality were just above 10 percent of all visitors. Since Duvalier's overthrow, visitors of Haitian nationality have been over one-quarter of the visitor counts.

These visitors are not typical visitors and their inclusion in the visitor numbers distorts the clear picture of foreign visitors to Haiti. If they are excluded, the trend in foreign visitors to Haiti becomes clear. Visitors to Haiti have decreased 35% over the past two years. Table 3 illustrates what the visitor counts would be if the Haitian visitors were removed.

Table 3. PERCENT OF VISITORS OF HAITIAN NATIONALITY OF ALL VISITORS TO HAITI 1981, 1984 TO 1987

<u>Year</u>	<u>Total</u>	<u>Total Percent Haitian</u>	<u>Visitors less Haitians</u>
1987	121,800	26	90,000
1986	111,650	26	82,000
1985	149,650	18	122,700
1984	144,650	17	120,000
1981	139,000 ^{1/}	12	122,000

Note: 1/ This number accounts for all visitors of a known nationality and excludes the 30,000 visitors classified as Not Specific.

Source: Office National du Tourisme et des Relations Publiques, Haiti

Returning Haitians should not be entirely discounted since many of these returning Haitians take rooms in hotels and contribute to the tourist industry. They, however, are not the backbone on which the tourist industry can rely, for they do not return home and convince others to make a trip to Haiti.

Vacationers to Haiti

A clearer picture of actual "tourists" to Haiti emerges if the purpose of visits to Haiti and the lodgings of visitors are examined. The following tables refine the visitor numbers in an attempt to get to our definition of tourists.

Table 4 illustrates the precipitous drop in vacationers to Haiti over the past two years. The decline in total visitors to Haiti can be linked almost entirely to the decrease in "vacationers" since business people and "other" visitors have remained fairly constant during the 1980's.

Table 4. COUNTS OF TOURISTS BY PURPOSE OF VISIT TO HAITI, 1981, 1984 TO 1987

<u>Year</u>	<u>Total</u>	<u>Vacation</u>	<u>Business</u>	<u>Other</u>
1987	121,800	65,950	18,900	36,950
1986	111,650	62,800	14,700	34,150
1985	149,650	91,250	19,000	39,400
1984	144,650	84,650	20,400	39,600
1981	158,000	88,000	19,900	50,500

Source: Office National du Tourisme et des Relations Publiques, Haiti

Business people, Diaspora Haitians, missionaries, and others provide benefits to the tourist industry in so much as they occupy hotel rooms and purchase crafts and other goods. The outlying tourist businesses cannot survive from these visitors' purchases, nor can many of the Port-au-Prince hotels. The growth segment of the tourist industry lies with the "vacationers", as shown above, and it is with these visitors that the tourist industry must grow and expand.

True vacationers to Haiti generally are found in the city hotels and beach hotels. According to local tourist industry representatives, pensions and private residences are typically the lodgings of missionaries and visiting Haitians.

Thus, actual tourists to Haiti in 1987, as shown in Table 5, only totaled about 18,000. This represents only 27% of all vacationers in Haiti and only 15% of all visitors to Haiti. In contrast, 1985, the last strong season for tourism in Haiti, had nearly 40,000 vacationers staying in city hotels and beach hotels. This represented almost 45% of all vacationers and over 25% of all visitors to Haiti.

Beach hotels have experienced the severest drop in "vacationers" over the past three years; falling 200 percent from their 1985 level. Unfortunately, data were not available before 1985 on some of this information and therefore the conclusions are only conjectural. Confidence in these numbers stems from collaborating information given by tourist industry officials and hotel operators.

Table 5. COUNTS OF TOURISTS WITH "VACATION" AS PURPOSE OF VISIT AND THEIR PLACE OF STAY IN HAITI, 1985 TO 1987

<u>Year</u>	<u>Total Vacationers</u>	<u>Hotel</u>	<u>City Hotel</u>	<u>Beach Pensione</u>	<u>Private Residence and Other</u>
1987	65,950	10,850	7,250	2,750	45,100
1986	62,800	10,550	4,650	2,650	44,950
1985	91,250	17,950	22,000	3,800	47,500

Source: Office National du Tourisme et des Relations Publiques, Haiti

Revenues

Tourism is a certain revenue generator to any local economy. Many Caribbean nations rely heavily on tourism as a major component of their economies. Haiti, with a more diverse economy relies less on tourism. Its potential for expanding the current tourist contribution to its economy is an achievable goal based on its past contribution and a comparison with neighbors having similarly diverse economies.

Neglecting this segment of its economy has resulted in lost revenues and a smaller percentage share of tourist revenues than its Caribbean competitors. Tourist revenue to the Haitian economy provides an infusion of foreign capital, taxes to the government, and value-added to the local economy.

In terms of visitor expenditure as a percent of Gross Domestic Product, Haiti's position is well below that of most other Caribbean nations. According to the Caribbean Tourism Research and Development Center (CTRDC), visitor expenditure in Haiti amounted to 3 percent of its 1983 Gross Domestic Product. Similarly, the Dominican Republic's was 4 percent. In contrast,

the more tourist-developed country of Jamaica with a similarly diversified economy had visitor expenditures of 18 percent of its Gross Domestic Product (Caribbean Tourism Statistical Reports: 1986).

Visitor expenditures are of potentially greater value than their face value as each expenditure ripples through the economy and adds value to the regional and local economies. Unfortunately, this value is diminished by leakage, that is, dollars sent abroad for imported goods and services and foreign assistance (Sealey, 1982). A multiplier for Haiti is not known, but based on other Caribbean country experiences this multiplier is thought to be about 1. Attaining a level above 1 would mean that each dollar spent in the local economy would add more than its face value to the local economy.

The government also stands to gain certain general revenues from the tourist industry directly from hotel room and the departure taxes, and from indirect sources, such as duties, utilities, employment taxes, and income taxes. Direct government revenues from tourism include a 5 percent government tax on all hotel rooms and a \$15 per person departure tax. Indirect revenues probably are about 5 percent to 10 percent of tourism expenditures.

The following table illustrates the estimated revenues of the government from these sources for both a good tourist year and a poor year. As shown, the government received an estimated \$10.5 million in revenues from visitors in 1985 from these sources. In contrast, 1987 revenues from visitors on these taxes decreased by almost \$3 million. About two-thirds of this decrease resulted from fewer tourists staying at hotels and beach hotels.

Table 6. ESTIMATED GOVERNMENT REVENUES FROM VISITORS THROUGH HOTEL AND DEPARTURE TAXES FOR 1985 AND 1987

<u>Year</u>	<u>Total Visitors</u>	<u>Total Hotel/Gst Hs: Visitors</u>	<u>Avg Nts/Gst 1/</u>	<u>Avg Cost/Room 2/</u>	<u>Est. Hotel Tax (000)3/</u>	<u>Departure Tax (000)4/</u>	<u>In-Direct Rev (000)5/</u>
1985	149,650	110,266	8	\$60	\$2,700	\$2,250	\$5,250
1987	121,800	77,000	8	\$55	\$1,700	\$1,800	\$4,250

- Notes: 1/ Estimate; based on Office du Tourisme statistics.
 2/ Weighted average of hotel, beach hotel, and guest house room charges. According to industry sources, room charges have not increased in past few years. Difference

35x

- results from fewer hotel guests while guest house guests remained steady.
- 3/ 5% of room charges.
 - 4/ \$15 per person.
 - 5/ Based on \$500 per person per trip expenditures and a revenue of 7 percent of these total expenditures.

Source: Office National du Tourisme et des Publique Relations, Haiti and consultant.

Tourism Generated Employment

The tourist industry generates various forms of employment. A major source of employment lies with the hotels. The Caribbean Tourism Research and Development Centre (CTRDC) estimates that approximately 92 persons are employed for every 100 rooms, or almost one person per room. In addition, other direct and indirect employment may be attributed to the tourist industry, such as taxi drivers, restaurant, casino, souvenir shop, and other public and private sector service business employees.

The major Caribbean tourist-developed countries achieve employment ratios of over 4:1 of indirect and direct tourist employment to accommodation employment. The estimate of the number employed for other less tourist developed countries is 3:1 (CTRDC, 1986).

In 1983, the total number of rooms (hotels, beach hotels, and guest houses) in Haiti was estimated by the CTRDC at about 3,600. The Office National du Tourisme and the Haiti Hotel Association did not have any figures for total accommodations. Using the CTRDC estimates for accommodation employment and indirect and direct employment, among the Caribbean countries it is estimated that the Haitian tourist industry provided an estimated 14,400 jobs during the peak tourist period.

Today, employment related to the tourist industry is significantly less. The closing of numerous hotels has decreased the number of rooms by at least 650. In addition, most hotels are operating with reduced staffs of approximately half to two-thirds of their peak employment. Further, the drop in the tourist industry has reduced demand for ancillary services and, therefore, the direct and indirect tourist industry ratio would be considerably less than 3:1.

III. STATE OF TOURISM IN THE LES ARCADINS REGION

Tourist Activity Between 1980 - 1987

Unfortunately, specific data on tourist visits to the

region are non-existent. However, through interviews with hotel owners and operators and an analysis of government tourist data, inferences can be made about tourist activity in the region between 1980 and 1987. This time frame includes both peak and valley tourist periods for Haiti and the region.

Information gathered by the Office du Tourisme et des Relations Publique about tourist destinations to beach hotels portrays a remarkable climb in tourist numbers between the late 1970's and the mid-1980's. The bulk of these tourists likely went to the beach hotels in the Les Arcadins region. Of the almost 800 beach hotel rooms in Haiti, over 80 percent are in the Les Arcadins region.

Table 7 depicts the increase in tourists to the beach hotels. These numbers do not include visits by Haitian residents. In 1976 about 9,000 tourists had beach hotels as their primary destinations. At this time about 250 beach hotel rooms were available in Haiti. Based on these numbers, the calculated average annual occupancy rate was about 30 percent for these hotels. By 1981, annual tourists to beach hotels had doubled to almost 16,500. Additions to the hotels at this time included the 350-room Club Mediterranean, a high volume generator of tourists. The calculated average annual occupancy rate for all beach hotels, however, remained about 30 percent because of the substantial increase in hotel rooms.

Beach hotel tourism climbed to 24,000 annually by 1985 which brought the calculated average annual occupancy rate up to about 50 percent for the beach hotel industry. Club Mediterranean most likely generated about 50 percent of these tourists. From these numbers, it is clear that Haiti and this region had achieved recognition as a Caribbean resort destination.

Unfortunately, the bottom fell out of the tourist industry in 1986. Due to the uprisings and ouster of Duvalier, annual tourists to beach hotels numbered just over 5,000 according to Office of Tourism statistics, or one-fifth that of the previous year.

The next year, however, started out relatively well. Club Mediterranean was operating and European tourists were still making their way to some beach hotels. This optimism was squelched by the civil disturbances of the summer of 1987 and the violent turmoil during the fall elections. These events have all but eliminated foreign tourists in Haiti.

Table 7.

**NUMBER OF VISITORS TO BEACH HOTELS IN HAITI AND
CALCULATED AVERAGE ANNUAL OCCUPANCY RATE,
1976, 1981, 1985 - 1987. 1/**

<u>Year</u>	<u>Visitors at Beach Hotels</u>	<u>Average Num of Tourists/ Room 2/</u>	<u>Average Num of Nights/ Visitor</u>	<u>Average Occupied Room Nights</u>	<u>Avail Beach Rooms</u>	<u>Avail Room Nights</u>	<u>Annual Occup Rate</u>
1987	8,200	1.5	9.2	50,140	785	286,500	17.5%
1986	5,250	1.5	9.0	31,500	785	286,500	11.0%
1985	24,000	1.5	8.8	140,800	785	286,500	49.1%
1984	20,200	1.5	8.6	115,800	755	275,600	42.0%
1981	16,450	1.5	7.5	82,300	735	275,600	30.0%
1976	8,650	1.5	5.0	28,800	250	91,200	31.5%

- 1/ 1981-1983 data are not available from Office of Tourism because record tracking was being transferred to computer system.
- 2/ Consultant estimate.

Source: Office National du Tourisme et des Relations Publiques, Haiti.

These government figures are substantiated by the beach hotels in the region. During the peak tourist years, which all resorts refer to as 1980 to 1985, each resort reportedly operated at 50% to 65% average annual occupancy. (This is higher than shown for the early 1980's in Table 7 because some resorts were just beginning operation in the early 1980's.) Peak season for these resorts was December to February when occupancy rates would hover near 100%. March and April remained strong at rates around 75%. Low seasons were early summer and fall. Late summer usually was a strong season with most hotels achieving about 50% occupancy levels.

At these levels of occupancy, the beach hotels in the Les Arcadins region catered to between 90 percent and 95 percent of all tourists with beach hotels as their primary destinations in Haiti. This likely is not too off-the-mark as few beach hotel rooms existed in other parts of Haiti. Club Mediterranean would have garnered the greatest number of guests and likely accounted for almost two-thirds of the visitors to the region.

Since 1986, few hotels report seeing foreign visitors. Club Mediterranean remained open until late summer 1987 and therefore generated some foreign tourists. Most other hotels, however, have found little support from abroad over the past three years.

Table 8. OVERALL NUMBER OF VISITORS AND OCCUPANCY RATES FOR LES ARCADINS REGION BEACH HOTELS DURING PEAK TOURIST YEAR 1985

<u>Hotel</u>	<u>Peak Avg Annual Occup Rate</u> 1/	<u>Occupied Room Nights</u>	<u>Avg Room Night/ Tourist</u>	<u>Average Tourists per Room</u>	<u>Total Num of Visitors</u>
Ibo Beach	45-50%	12,800-14,200	8.5	1.5	2,250- 2,500
Kyoná Beach	50-55%	3,600- 4,000	9.5	1.5	650- 700
Kaliko Beach	50-55%	7,300- 8,000	8.5	1.5	1,300- 1,400
Ouanaga Bay	40-45% 2/	5,900- 6,600	8.5	1.5	1,000- 1,150
Xaragua	40-45% 2/	7,000- 7,900	8.5	1.5	1,200- 1,400
Club Med	60-65%	76,600-82,850	8.5	1.5	13,400-14,600
Jolly Beach	60-65%	4,400- 4,700	8.5	1.5	800- 850
Moulin Sur Mer	30-35%	3,300- 3,800	8.5	1.5	600- 700
Totals					21,200-23,300

- 1/ Based on operator's estimate.
2/ Consultant estimate.

Sources: Office National du Tourisme et Relations des Publiques, Haiti; Association Hoteliere et Touristique d'Haiti; and, personal interviews.

Regional Beach Hotels (See Section 4, Appendix I. in the Resource Document.)

Characteristics of Beach Hotels

The full-service hotels are the most significant employers within the regional tourist industry. Each hotel is designed as a resort which caters to most of the needs of the tourists and where each tourist spends the majority of his time and money. These resorts provide lodging, restaurants, bars, entertainment, and recreational amenities such as tennis courts, snorkeling and windsurfing equipment, horseback riding, and excursion boats.

Table 9 lists the eight hotels with 626 rooms that operate in the Les Arcadins region, although the Xuragua is closed and the Club Mediterranean has temporarily suspended operations. The largest of the region's hotels is the chain-operated, 350-room Club Mediterranean. All other hotels are local owner-operated businesses and are much more modest in scale from 20 to 78 rooms.

Table 9. CHARACTERISTICS OF BEACH HOTELS IN THE LES ARCADINS REGION, 1987

<u>Hotel</u>	<u>Year Built</u>	<u>Number of Rooms</u>	<u>Winter Rates Single</u>	<u>Room (MAP) 1/ Double</u>
Ibo Beach	Late-1950's	78	65.00	65.00
Kyona Beach	1965	20	69.00	93.00
Kaliko Beach	Early-1970's	40	83.00	117.00
Ouanaga Bay	mid-1970's	40	N/A	N/A
Xuragua	1979	48	Closed	Closed
Club Med.	1980	350		115.00 2/
Jolly Beach	1982	20	68.00	88.00
Moulin Sur Mer	1985	<u>30</u>	58.00	90.00
Totals		626		

Notes: 1/ Modified American Plan of two meals per day.
 2/ Package cost of \$1,100 includes airfare.
 Estimated room cost is \$115 per day per person with American Plan.

Source: Association Hoteliere et Touristique d'Haiti and personal interviews.

Employment

Total direct employment at hotels during the peak tourist years amounted to over 560 full-time workers (460 local Haitians), or slightly less than one person per hotel room. Most Haitians employed lived in the villages nearest the resorts and a few traveled from Port-au-Prince or St. Marc. Club Mediterranean was the largest resort employer in the region with a total of 250 employees; 150 of which were Haitians.

Today less than half that amount would be considered full-time employees. The actual number of people employed by hotels may be close to 300 but many of these are employed in a swing shift fashion where they work two weeks of every month. Many hotels are using this practice in order to spread the wages to as many employees as possible. However, in comparable terms, the level of full-time employment has fallen below 200 employees.

Wages received by hotel employees contribute substantial cash to the local economy. The average wage per employee at beach hotels ranges from \$100 to \$200 per month. Most hotels pay between \$100 and \$150 per month. This is from \$30 to \$80 more than the minimum wage in Haiti. An employee's take-home pay, however, is higher than the paid wages as each employee receives a portion of the 10% service charge added to all expenses at the resort. Each worker is given a proportionate amount of the service charge depending on their degree of contact

with the guests. Waiters receive the greatest proportion, while cleaners and grounds keepers the lowest proportion. In total, this service charge adds from 10 percent to 50 percent of an employees wages. It could even add up to 100% of a waiter's wages.

The annual inflow of dollars into the local economy during the peak tourist years through wages was about \$700,000. Today, the annual inflow through wages is about \$300,000, or 40% of the peak amount.

Incidental employment is more difficult to assess. Spin-off employment is generated by the presence of large numbers of tourists. Examples of this spin-off employment include Haitian fishermen who transport guests of the beach hotels to Les Arcadins; the 25 to 50 villagers who sell crafts and shells every week at the resorts; and, the Haitian bands and voodoo shows that perform at the resorts. Using CTRDC's factor of three times the hotel employment as direct and indirect tourist industry employment, incidental employment associated with the local hotel industry during peak years would have amounted to almost 1,700 persons. This employment would have affected locals from Port-au-Prince to St. Marc.

In total, it is estimated that the hotel industry provided some 2,200 Haitians with employment during the peak years and injected at least \$2 million into the local economy in wages.

Revenues

Government revenues were generated from the hotel room tax and the departure tax. As shown in Table 10 below, in the peak tourist year for the beach hotels, the government would have received an estimated \$1.8 million dollars in revenue from the beach hotels. This is over half the estimated revenue of all government revenues from these taxes generated by tourists to Haiti.

Based on estimated annual incomes for beach hotels and the average number of guests staying at hotels during the peak years, the estimated weekly expenditure per guest at beach hotels during 1980 to 1985 was between \$800 and \$1,200. These figures exclude expenditures on gifts, diving equipment, boat rides, and other recreational activities. The average daily expenditure per tourist for these items was relatively low and estimated between \$25 to \$50 per day, or \$200 to \$350 per week.

**Table 10. ESTIMATED GOVERNMENT REVENUES FROM BEACH HOTELS
DURING PEAK TOURIST YEAR 1985**

Total Visitors to Region's Beach Hotels 1/	21,200-23,300
Departure Tax per Tourist	\$15
Departure Tax Revenues	\$320,000-\$349,500
Occupied Room Nights 1/	120,900-132,000
Average Price per Room 2/	\$100
Government Tax Revenue at 5%	\$605,000-\$650,000
Indirect Government Revenues	
Using \$500 per stay Expenditures	\$750,000-\$800,000
Using \$1,000 per stay Expenditures 3/	\$1,500,000-\$1,600,000
Estimated Total Government Revenues	\$1,675,000-\$1,800,000 (\$2,425,000-\$2,600,000)

- Notes: 1/ From Table 8.
2/ Weighted average.
3/ Based per visitor expenditure as detailed below.

In total, each tourist was estimated to be spending between \$1,000 and \$1,400 during their stay, or \$115 to \$165 per day. These figures are comparable to those of tourists at the more tourist-developed nations of the Caribbean.

For the peak tourist year of 1985, this expenditure at beach hotels in the Les Arcadins region injected the Haitian economy with an estimated \$24 million to \$34 million, which included wages and salary payments and fish and seafood purchases. This is about one-third to one-half the CTRDC estimate of visitor expenditure for all of Haiti in 1985.

Tourist Contribution to the Fishing Industry

The tourist industry has always depended heavily on the fishing industry because fish and seafood are in demand by resort guests. In order to meet these demands, the resorts purchase fish and seafood from either the local villages or from the major fishing ports of Port-au-Prince and St. Marc. The place of purchase differs per hotel and depends on its proximity to a fishing village.

In general, the village of Luly supplies the lobster and lambi to the hotels in its vicinity, Kyoná Beach, Kaliko Beach, Jolly Beach, and Ouanaga Bay. Fish is supplied to these hotels mostly from St. Marc. The Ibo Beach purchases fish and lobster from the village of Seminote while lambi is purchased from Port-au-Prince. Moulin Sur Mer, the most distant hotel from Port-au-

Prince, interestingly enough purchases all its fish and seafood from Port-au-Prince.

Annual revenues to the fishing industry generated from purchases of fish and seafood during the peak tourist years is estimated to range from \$500,000 to over \$750,000. Today, annual revenues are about half.

The price paid per pound of fish ranged in 1988 from \$1.30 to \$2.20 with the majority of hotels paying in the \$1.30 to \$1.60 range. Lobster was priced from \$2.20 to \$3.50 per pound with the average around \$2.50 per pound. Lambi was priced from \$2.00 to \$2.50 per pound.

The study's estimate of the demand for fish and seafood during the peak tourist years was based on the current quantities being purchased by the hotels and the current number of meals served. The ratios calculated were applied to estimates of the number of meals served during the peak tourist years in order to establish a demand for fish at that time. These figures are rough estimates and they are given only to provide a benchmark of the potential revenues which could be generated by the tourist economy to the local fishing industry.

The weekly quantities of fish and seafood demanded by each local hotel, except Club Mediterranean, during the peak tourist years is estimated to be between 300 and 400 pounds of fish, 250 to 350 pounds of lobster, and 200 to 275 pounds of lambi. These quantities would serve from 400 to 600 meals at each hotel. Today the hotels are purchasing from 150 to 200 pounds of fish, 100 to 125 pounds of lobster and about 50 to 100 pounds of lambi for an average of around 200 meals per week.

SCUBA Diving and Snorkeling: History and Promise

Diving facilities were introduced to Haiti in the early 1970's. Business was not entirely successful in the early days, but by the 1980's, when a dive shop moved to Kaliko Beach, diving had become an attraction for a number of visitors to the area. Other diving guides were located in Petit Gonâve and Cap Haitien, but these businesses did not offer any services.

Most divers enjoy their experiences in Haiti and give the area a positive critique. A write-up in the July, 1983 issue of Undercurrents gave a favorable report of the diving in Haiti, although the reporter found the area lacking in large tropical fish. This report was a quick and unscientific assessment of the resources of the area. The article commented that

"the stationary life was alive, abundant, and healthy, the many tropicals were varied, the shallow depths provided great bottom time for photographers.... This

is aquarium diving, and the list of what I observed in my week is quite a list....Overall, I would say the diving I experienced was, perhaps, diving for connoisseurs..."

In the past, Les Arcadins divers were almost exclusively from visitors. The major emphasis of the business was to market the dive site to U.S. divers. During the peak tourist years, an average of two groups of ten to twelve divers per month would come to Les Arcadins. About 200 divers per year would visit Kaliko Beach Hotel through package tours on an average of one week stays. A percentage of divers used the dive shop at Kaliko while staying at other resorts. This amounted to about 20% of the overall operation of the shop. As of August 1988, the last dive package group to visit Kaliko Beach was in February 1986. An estimated 20 to 25 percent of all those staying at the region's resorts visited the dive shop.

During its heyday, the dive shop was capable of generating over \$150,000 in revenues annually. Divers would generally pay about \$35 per day and stay an average of seven days. Additional revenue would be generated from sales, snorkel and other equipment rentals, and boat excursions. The Les Arcadins took up about two days of diving activity. During the course of a week's stay, divers also traveled to La Gonave and Amani, on the coast, for wall dives, and a look at the so-called "world's largest sponge."

Today the Kaliko Dive Center is equipped to fully furnish ten divers with an extra supply of 40 tanks. Facilities at the shop include a compressor, repairs, sales, a zodiac launch capable of carrying four divers or six snorkelers, and three dive instructors and a new boat which can handle up to eight divers or ten to twelve snorkelers. Current operations handle about 20 to 25 local divers and 30 snorkelers per month with most destinations to Les Arcadins. Each local diver generally makes the day-trip to the Kaliko Beach from Port-au-Prince. Few divers have been arriving from outside of Haiti. SCUBA instructions amount to about five persons per month.

IV. REBUILDING HAITIAN TOURISM

Rebuilding tourism in Haiti will require a rebuilding of the Haitian image abroad and stronger government interest in strengthening this major element of its economy.

New marketing elements that will sell Haiti and promote the country both to resident Haitians and to foreign markets are necessary. At present, plans for potential development of such marketing elements include the creation of a marine park at Les Arcadins and the revitalization of Cap Haitien. The marine park could provide a new destination for small draft cruiseships and

increased tourism to local hotels.

Studies are planned for Cap Haitien to determine what infrastructure is needed to attract cruise ship lines and re-establish Haiti's presence in the Caribbean. Public relations efforts also are being explored which will highlight the 500 year anniversary of Columbus's landing at Cap Haitien and the discovery of the Santa Maria.

All of these elements require government support and outside funding. Financial support for tourism would provide the government with a lucrative return on its investment. New tax revenues and jobs would be immediate impacts; tourist expenditure would provide much needed foreign capital; and value will be added to the economy as each dollar spent in Haiti is turned over numerous times for goods and services.

V. PARK ESTABLISHMENT ISSUES

Legal Status of Les Arcadins

Les Arcadins islands, although not yet designated by the government as a park protected area, have been singled out by a Presidential Decree on November 11, 1983. It was stated that since the public domain includes islands and since Les Arcadins islands had tourist value and represented an ideal area or zone for the development of tourism, the Les Arcadins islands were being transferred from the public domain to the private domain of the State. L'Administration Generale des Contributions was authorized to survey the islands so that they could be further utilized.

The Decree of 1983 is still in effect. Haitian legislation does not have a clear and simple definition of "domaine privé de L'Etat" (private domain of the State). However, it is, by opposition to the definition of public domain, any part of state properties capable of being transferred to a private entity. (Ewald, 1988)

Park Management Options

Government of Haiti (GOH)

The recent political events, in Haiti, made government participation in the marine park project difficult during the field work. In fact, until recently, discussions with the GOH were restricted by U.S. government policy. However, once the Les Arcadins Marine Park Action Plan is adopted by the Haiti Hotel Association, it will be important for the Association to take the plan to the appropriate government agencies to obtain their views and endorsement of the project. It will then be up to the private sector and the GOH agencies to transmit the proposal to the President of Haiti, at the most opportune time, to request that it be designated a park by Executive Order. World Wildlife Fund will be available to work with the Haiti Hotel Association, during this time, if the Association requests them to do so.

There are essentially two branches of the GOH immediately relevant to the marine park, representing the two major objectives of the park; tourism and marine resource protection. The first is the Office National du Tourisme and the second is the Service de la Pêche/Ressources Naturelles, in the Ministre d'Agriculture. The former Office National du Tourisme originally sponsored the idea of the marine park at Les Arcadins in 1986, and the current Office National du Tourisme has been kept informed of the marine park field work by the Hotel Association.

Marine resource protection falls within the purvue of the Direction de Peche des Ressources Naturelles, Service de Peche et pisciculture (Fisheries Office of the Natural Resources Department). The Fisheries Office has recently agreed to serve as counsellor to the marine park on fisheries related issues. However, because of internal political problems, the GOH administration and management of the park was not considered as a viable option, at the present time.

Non-Governmental Organization (NGO)

An informal survey of potential NGOs was undertaken in the Fall of 1988 and February of 1989 to identify a private organization or group that might be suitable to manage a marine park. In the immediate area of Luly, only two NGOs are currently operating. One is "Mission Possible" and the other is a small group which runs a community clinic south of Luly. The former is apparently already over-extended and failing, the latter health-oriented and too small. Neither would be appropriate. Other NGO's surveyed included ISPAN (Institut pour la Sauvegarde de la Patrimoine Nationale), FAN (Federation Des Amis De La Nature), a conservationist organization, the Haitian Audubon Society, Agouée Dive Club, and the Haiti Hotel Association.

Currently, as in the past, ISPAN has been primarily involved in the restoration of La Citadelle and Sans Soucie in the north near Cap Haitien. Most of the funds and expertise have come from UNESCO and USAID. At one time ISPAN was engaged in the production of school texts on Haitian history. ISPAN does not appear to have the organization to manage a marine park but may have the background and contacts to work with a park educational program. FAN is a group of conservationists who have just begun to organize. Although they lack administrative and management experience, their role as a private citizen's organization, should be encouraged. The Haitian Audubon Society appears to have the same drawbacks as FAN. The Dive Club, although very supportive of establishing a park at Les Arcadins, does not have the practical experience as a group to manage the park. Their collective advice, individual interest, and expertise, however, should be utilized.

The Haiti Hotel Association, local sponsors of the Les Arcadins project, have also been very supportive of the project. The Association, however, is in a much better position to serve as manager and administrator of the park, since it has an office with staff and a permanency in Haiti which most other NGOs do not have. It also has a long standing, working relationship with the government's Office National du Tourisme and is thus in a position to coordinate park development with the new government's present efforts on behalf of tourism. Although the Association does not have the time nor the means to become a full marine park manager, it is a good choice to act as overall administrator; to

receive and disburse funds and take the steps needed to establish the park. With the promise of funding from the park budget to pay for increased overhead costs, the Association has indicated its willingness to accept fiscal responsibility for the project.

Another important NGO, the Haitian Association of Voluntary Agencies (HAVA) is an umbrella organization uniting all the NGOs, foreign and Haitian, currently operating in Haiti. In addition to functioning as a clearing house for information affecting NGOs, it also represents this sector to the government, coordinates development activities by its member organizations throughout the country, engages in fund-raising, and also operates a number of small, self-help community projects through specialized committees composed of representatives from its member organizations. HAVA is a well-organized and efficient agency with considerable experience. Its officers are seasoned and knowledgeable participants in the Haitian development sector. It is recommended that HAVA be asked to serve as one of the official counsellors to park management.

Potential Funding Agencies

United States Agency for International Development (USAID)

There are three current Haiti projects, funded by the USAID Mission, that share common objectives and issues with a marine park project in Haiti. First, the Agricultural and Rural Development Office of USAID has funded a Hillside Farming Project (Project Officer: Cat McIntyre), to provide a multidimensional approach specifically targeting poor peasant farmers on eroding hillsides in the Les Cayes area. This project area includes the newly established Pic Macaya National Park. The Pic Macaya component is being managed by the University of Florida (Paul Paryski) and a Haitian government secretariat, situated in the Ministry of Agriculture. This project's role in the designation, delineation, and maintenance of the Pic Macaya park provides valuable insight into ways in which the Les Arcadins park project fits into the funding objectives of USAID, that is, to help solve local social, biological and institutional problems. It also sets some precedences in connection with working with the Haitian Ministry of Agriculture and could provide a basis for a future marine park relationship with the GOH.

The USAID Office of Private Enterprise Development, funds PROMINEX (Project Officer: Cris Juillard), which serves the private business community in the same way that HAVA serves the NGO sector. That is, PROMINEX is a clearing house for information, coordination, and lobbying both to the GOH and to foreign investors to stimulate economic growth. The establishment of a marine park at Les Arcadins would enhance the efforts of PROMINEX and could be considered by USAID in that context. Furthermore, once the marine park is established and

operating, PROMINEX might be the place to start with a promotional campaign to publicize the marine park, and attract the foreign tourist industry.

Third, and of the most immediate interest, the Office of Human Resources hosts the Special Development Activities Project (SDA) (Project Officers: Patrick McDuffie and Jean-Claude Lucas). SDA provides material grants to self-help community projects. These grants provide up to \$20,000 in material assistance to approximately 30 communities each year. The communities provide labor and transportation costs, SDA provides the materials. No money is disbursed directly to the communities. Although most SDA projects involve school building construction, irrigation canals construction, rural infrastructure initiatives, it is currently funding two fishing projects and is eager to initiate others. These funds could be very important in the strengthening of the Luly Fisheries Cooperative to benefit the park's working relationship with the the fishermen of Luly. USAID's SDA office has already expressed an interest in working with Luly in relationship to the establishment of Les Arcadins Marine Park.

Food and Agricultural Organization (FAO) and the United Nations Development Program (UNDP)

FAO and UNDP are also charged with funding programs which benefit the social, biological, economic and institutional framework of local areas, in collaboration with national governments. Currently, FAO is supplying a marine fisheries expert and a fresh water fisheries expert to the Service de la Pêche and the Ministère de L'Agriculture des Ressources Naturelles (The Fisheries Department in the Ministry of Agriculture) in Haiti. Recently, it has been working with fishermen all over the country, particularly in the Dame Marie/Anse d'Hainault area at the far end of the southern peninsula.

The FAO is planning to install FADs (Fish Attracting Device) in the waters off Luly in the near future with a fund which provides support for short-term technical assistance. The FAO might be willing to collaborate with park administration to provide additional on-site technical assistance to the Luly Cooperative, as part of a fisheries program for Luly.

One of UNDP's major funding objectives is the protection of the environment. Under its mandate, UNDP can fund personnel to work with governments, provide training and some equipment, and subcontract to NGOs. The UNDP mission, in Haiti, has expressed an interest in the marine park at Les Arcadins, from the standpoint of the development of tourism and the protection of biological diversity.

In 1987, the UNDP funded a film about Haiti's fishing sector and marine resources, photographed by two Peruvian marine biologists. It apparently presents a picture that is contradictory to the essentially negative film by the Cousteau Society, and would be a valuable asset to any educational or promotional efforts on behalf of Les Arcadins.

Other Funding Agencies

In addition to USAID's SDA program, several other governments (French, Dutch and Belgian) have SDA-like community project funds. These agencies usually work with HAVA sponsored projects.

Park Establishment of the Park Rules

Existing Marine Resource Regulations

It is recommended that for the first two years, existing regulations for Haiti's territorial waters and continental shelf be used at Les Arcadins Marine Park. These regulations have already been published in The Moniteur, and appear in the Official Journal de la Republic of Haiti. They include general provisions for fishing, the exercise of the right to fish and specifications for fishing devices.

The Articles of the Constitution which have the most applicabilty to the park are listed below.

Article 29. With the exception of sardines and sharks, any small fish caught by mesh of less than 16 millimeters shall be thrown back.

Article 30. The mesh of "hoop-nets" shall be at least 16 mm.

Article 32. Spear guns and harpoon fishing are strictly prohibited.

Article 33. It shall also be prohibited to transport spear guns and harpoons in boats used for fishing or gathering seafood.

Article 40. Fishing nets shall have 16 mm. mesh when stretched. Beach seine fishing nets shall have the following meshes:

Bottom of the seine fishing net, 16 mm. Mesh gauge diameter, 96 mm.

Middle of the seine fishing (net), 217 mm. Mesh gauge diameter, 17.2 mm.

Tail of the seine fishing 48 mm. (net). Mesh gauge diameter, 25.4 mm.

Article 42. Nets shall be 300 meters long at the most.

Article 95. Nobody shall be authorized:

(1) to dump in the sea or in watercourses any material likely to affect their ecology; (2) throw drugs to bait in order to inebriate or destroy fish; (3) use dynamite or other similar products in order to catch fish.

Article 97. It shall be strictly prohibited: a) to catch, sell or export tritons (*Claronia variegata*); b) to catch turtles and sea-tortoises from May through October (Laying season); c) to collect eggs of turtles or of any species in territorial waters, particularly those of sea-tortoises and turtles; d) to catch turtles and sea-turtles on the beach; e) to gather sea crabs between December 1st and May 31st; f) to hunt pinnipeds (seals, sea-lions), or cetaceans (whales, dolphins, and porpoises) in territorial waters without special authorization from the State Secretariat of Agriculture, Natural Resources and Rural Development; g) to cut the American mangroves used as shelter by different aquatic species (particularly oysters).

Article 100. Exploitation of coral of any type shall be prohibited. This shall also apply to sea fans and limestone from the seabed.

Article 101. The catching and exploitation of seafood shall be prohibited within 50 meters from protected sites designated as national parks.

Article 102. The boundaries of sites chosen as national parks shall be indicated by phosphorescent signal buoys.

Article 111. Crayfish (lobster) fishing shall be closed from April 1st to September 30th every year in order to protect the species.

Article 112. The sale of egg carrying Caribbean spiny lobsters shall be prohibited at any time. It also shall be prohibited to engage in the commercialization of crayfish which are moulting or whose eggs have been purposely removed.

Article 113. The following shall also be prohibited: 1) the sale of black belly (rotten) crayfish on local or external markets or for export; 2) any capture, sale, export of crayfish of less than 15 grams or 5 ounces; 3) the export or local sale of chopped up crayfish (lobster) flesh. Only those crayfish tails weighing at least 5 ounces may be sold.

Article 116. The length of a crustacean shall be measured from the top of its eye to its posterior or the end of its tail.

Future Regulations

There may be a need to enact special regulations for the park, at some future date. These regulations would have to be proposed to the GOH, by the Advisory Committee, for inclusion in the existing regulations.

Enforcement

The legal authority for enforcement of all national regulations rests with the Haitian government. However, as in most marine area enforcement throughout the world, an effective enforcement presence is lacking. The best chance of regulating the use of the marine waters of Les Arcadins is by educating and assisting the users; fishermen and SCUBA, snorkelers alike, to the reasons for the regulations. Park rangers can be selected from among the fishing community, trained and equipped with a small boat to survey and monitor Les Arcadins waters. Dive club volunteers could also be trained to help in the educational process.

Public Awareness and Environmental Education

The lasting protection of the marine resources at Les Arcadins and elsewhere in Haiti, depends on an informed public and local involvement, not on the enforcement of park regulations. This can best be achieved through a public awareness and environmental education program. Les Arcadins will be the first marine park to be established in Haiti. As such, the concept of a marine park, its purpose and potential value to the community is not common knowledge. In addition, except for fishermen and others who live near the sea, knowledge about underwater ecosystems such as coral reefs and seagrass beds is minimal.

The idea of a marine park must be introduced with thought, care, and a genuine concern for the community. Otherwise the investment of funds for the marine park could be viewed, by some, as a case of misplaced priorities, especially when there are so many other immediate social needs. Many people living near the proposed site are poor and depend on the marine resources for their subsistence. Any move to restrict their use of the area must take into consideration the possible impacts on the community and provide viable alternatives.

To a great extent, communicating ideas about the park and gaining public support will be the mission of the public awareness and environmental education program. Not everything outlined below is possible within the first two years. Priorities will have to be set by the advisory committee and the Executive Director.

Audience

There are several important audiences which must be reached, requiring a variety of approaches and the use of different media. First there is the local fishing community which will be directly affected by the park. Their support is essential. They must be informed and involved in the decision-making process and in the formation of management policies. It is critical to the long-term success of the park that the local fishermen see tangible benefits from the establishment of a protected area for themselves and for their community.

The hotel and other land owners, along the coast, are influential people whose businesses could directly benefit from increased tourism at Les Arcadins. Many of these people and their guests will want to use the park for recreation. As the potential of the park is realized, they will probably begin to improve the tourism infrastructure along the coast adjacent to Les Arcadins, thus leading to increased economic development. As development occurs, their cooperation will also be needed to ensure that land development does not pollute the marine environment. Their assistance in promoting the park and in observing park regulations is also needed.

Visitors to the park will include international tourists such as SCUBA divers and snorkelers and national visitors (although this group may not be significant at first). They will need to learn about the available facilities and the regulations once they arrive, entrance or diving fees, and other existing leisure options.

Although government officials may not play an active role in the management of the park, at the beginning, their cooperation and assistance is desirable. They will need to be kept informed of developments at the park and involved in an advisory manner, especially the Office du Tourisme and the Service de la Peche. The general public will need to receive basic information such as why the park was established, what benefits are expected, and why the park is important to Haiti. Over time, this is an audience that, if properly informed and motivated, could support broader conservation programs for Haiti.

The Action Plan Public Awareness and Environmental Education Program

The proposed educational program is divided into three broad areas of operation: (1) national, international (2) community outreach and development, and (3) interpretation. The first area is designed to create public awareness of Les Arcadins at the national and international levels. Community outreach and development should sponsor activities aimed at the local

community, involving them in park management, and ensuring that the community benefits from park establishment. The interpretive program is designed for the benefit of on-site visitors. Each of these program areas is considered, in the Action Plan, as a step towards a successful marine park, and described, in greater detail in steps 10 through 18, with a continuation of programs in years 3 through 5.

VI. STEPS TOWARDS PARK ESTABLISHMENT/YEARS ONE AND TWO

Approach

In the interests of accommodating both tourist-related park activities and fisheries related activities, it will be necessary to allocate responsibilities to park management and the Luly Cooperative during the organizational and operational stages of the first two years. Any activity that has to do with improving the economic well-being of Luly fishermen and their community would be a project of the cooperative, whereas an activity associated with the marine park, per se, administration, monitoring, advancing tourism, and so on, would be the responsibility of the marine park director. This approach could have advantages in obtaining funding from a variety of sources.

Treating marine park activities and Luly cooperative activities separately does not, however, mean that they have separate agendas. Each entity should be encouraged to understand the objectives of the other, and, through the advisory committee, be ready to compromise and make trade-offs. For example, the marine park should actively seek funding for the development of alternative fishing technology and improvements, and even maintain a fund for this purpose, while the cooperative, for its part, would ensure that proper fishing techniques and restrictions were being respected by its members. Likewise, the marine park should encourage the local hotels to buy fish only from the cooperative, not from the speculators, with the cooperative only harvesting acceptable sizes and species. Exchanges of this sort will ensure the success of the project.

The Les Arcadins Action Plan provides a vehicle for contractual relationships between the cooperative, representing the village, and park management. Specific mechanisms to deal with failure to respect obligations will have to be worked out following designation of the park.

Organizational Stage

PHASE I.

The first three months of park organization, or PHASE I, will be critical to the successful implementation of the marine park. It is essential that the Hotel Association take the initiative to organize the Advisory Committee, seek legal status and adopt the timeline and budget as soon as possible, following adoption of the Draft Action Plan.

STEP 1 Convene a Les Arcadins Marine Park Advisory Committee.

To provide a forum for solving conflicts in the use of Les Arcadins (i.e. fisheries vs. tourism) and to give the park a chance to benefit from various points of view, it is recommended that a five person advisory committee, each with one vote, be organized and chaired by the Haiti Hotel Association. The Advisory Committee would act as administrator for the park and be served by an Executive Director who would manage the park on a daily basis.

Recommended members are as follows:

Haiti Hotel Association

One of the major objectives of the park is tourism development. The local Haitian sponsor of marine park development, the Haiti Hotel Association, has been and continues to be an instrumental force behind efforts to secure a marine park for its country. The Association has offered to act as overall park administrator and treasurer of the park. It is proposed that the Hotel Association act as chairperson of the advisory committee for the first two years of park operation. It would be responsible for convening meetings of the Committee and its advisors, securing the funding, hiring the Executive Director and receiving and disbursing funds.

Representation from the Luly Fishing Cooperative

The existence of the Luly Fishing Cooperative is an enormous advantage to park management. Priority should be given to not only use the Cooperative as the sole means of liaison with the community, but to help it to incorporate new members and consolidate its own community authority and power. In this way, the marine park management will avoid becoming embroiled in social factions within Luly itself and will force Luly to take a socially united stand within the context of the project (and hopefully outside of it as well), and finally be able to avoid the machinations and demands that will inevitably come from local power brokers and speculators.

True participation of Luly will rest on a series of real and concrete exchanges and benefits between the Cooperative and the marine park. To facilitate this, Luly should be given actual authority within the framework of park management. Too often the fundamentals of responsible social collaboration are left behind through lack of patience with knowledgeable local people and an unwillingness to take class differences into account.

The President of the cooperative would serve as a voting member on the Advisory Committee.

The Dive Club, Agouée

Agouée has a wide ranging membership, brought together through a mutual love of underwater exploration in the marine environment. It is recommended that they have a voting member on the Advisory Committee to represent snorkeling and SCUBA diving recreational interests.

Private Environmental Organization

Attempts to survey environmental non-governmental organizations were largely unsuccessful due primarily to lack of time and the difficulties of locating key people interested and responsible for these organizations. It has been suggested, however, that the Federation au Nature (FAN) would be the most likely candidate for this post on the Advisory Committee. Once the committee is constituted, perhaps the Hotel Association, using the questionnaire in the Resource Document, could survey groups once more and then make a decision as to which organization should represent the private environmental sector.

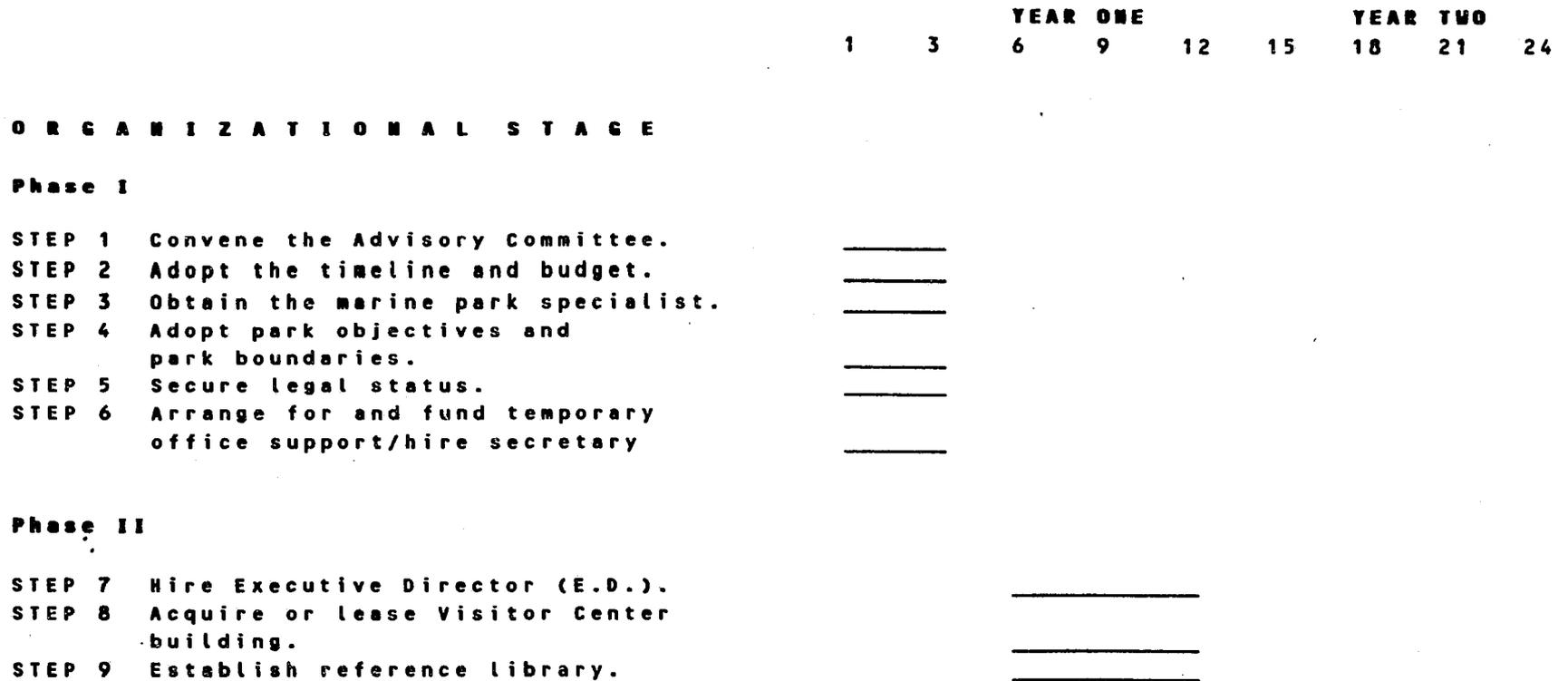
Representative of Community Development

The organization representing the point of view of community development must also be selected carefully. The Community Outreach and Development Program, outlined in the Environmental Education section, will need an experienced advocate on the Committee to lend its expertise and to guide the program through the first two critical years. HAVA has indicated a willingness to serve in an advisory capacity to the Committee and should be called on at the earliest opportunity.

STEP 2 Adopt the timeline and budget for the park.

A two year timeline and budget for park management and administration which carries forth the objectives of the marine park and ensures its long term success, will have to be considered and approved by the Advisory Committee. The Action Plan's proposed timeline and budget, submitted here, lists the recommended steps leading to the establishment of the park, and indicates their timing and costs.

**FIG. 8 TIMELINE
LES ARCADINS MARINE PARK
STEPS TO PARK ESTABLISHMENT**



			YEAR ONE				YEAR TWO		
	1	3	6	9	12	15	18	21	24

- STEP 18** Establish a community outreach and development program.
- Assist cooperative to improve fishing yields and equipment
 - Evaluate fish marketing problems in Luly
 - Assist cooperative with Literacy Program
 - Explore fishing and sailing tours with cooperative
 - Recruit fishermen for monitoring fish reserve
 - Contact/visit schools
 - Organize school visits to the park

- YEARS 3 -5** Initiate Research Program.
Continue Community Outreach and Development Program.
- Conduct a census of fishermen and boats
 - Prepare a stock assessment survey
 - Assess the wholesale market
 - Provide incentives and other ways of including Haitian students
 - E.D. participates in other regional training as appropriate
- Continue Interpretive Program.
- Produce park guide booklet

FIG. 9 BUDGET
LES ARCADINS MARINE PARK

ITEM	YEARS			
	1	2	Total	3-5
MANAGEMENT AND ADMINISTRATION				
<u>Salaries</u>				
Executive Director	20,000	20,000	40,000	60,000
Park Rangers (2)	3,000	3,000	6,000	9,000
Secretarial Support	<u>4,000</u>	<u>4,000</u>	<u>8,000</u>	<u>12,000</u>
Salary subtotals	27,000	27,000	54,000	81,000
<u>Transportation</u>				
Land Transportation Allowance (gasoline, insurance, repairs)	2,500	2,500	5,000	3,000
Fishing Boat Rental for ED	3,000	0	3,000	0
Support for Boat Transportation	<u>2,000</u>	<u>2,000</u>	<u>4,000</u>	<u>6,000</u>
Transportation subtotals	7,500	4,500	12,000	9,000
<u>Overhead Expenses</u>				
Operation Allowance for Advisory Committee Members	500	500	1,000	1,500
Support Services/Kaliko Dive Center (includes temp. park office)	1,200	1,200	2,400	3,600
E.D. interviewing expenses	1,500	0	1,500	0
Support Services/Haiti Hotel Ass.	3,600	3,600	7,200	3,000
Lease on Vis. Cntr.	12	12	24	36
Legal fees to draw up lease with Kailco for use of building	500	0	500	0
Postage	500	500	1,000	1,500
Xerox	250	250	500	750
Telephone	1,000	1,000	2,000	3,000
Miscellaneous supplies	500	500	1,000	1,500
Maintenance Fund	<u>0</u>	<u>1,000</u>	<u>1,000</u>	<u>4,500</u>
Overhead subtotals	9,562	8,562	18,124	19,386

ITEM	YEARS		Total	3-5
	1	2		
<u>Technical Assistance</u>				
Marine pk. specialist consultancy for Advisory Com & ED	<u>8,000</u>	<u>8,000</u>	<u>16,000</u>	<u>0</u>
Technical Assistance subtotals	8,000	8,000	16,000	0
PUBLIC AWARENESS AND ENVIRONMENTAL EDUCATION				
<u>Community Outreach</u>				
Open House for media/special guest	0	500	500	0
Community visits to park	<u>0</u>	<u>1,000</u>	<u>1,000</u>	<u>3,000</u>
Community Outreach subtotals	0	1,500	1,500	3,000
<u>Interpretation</u>				
Design phase for Interpretive program and Visitor Center	7,000	0	7,000	0
Construction of trails, facilities at Lighthouse Island	0	8,500	8,500	0
Install Vis. Cntr. interp. exhibits	0	5,000	5,000	5,000
Contract/Produce educational aids				
Slide program (2 sets)	1,000	0	1,000	250
Brochure/10,000 copies	4,500	0	4,500	0
Poster/5,000 copies	8,500	0	8,500	0
Three cons. bks./3,000 copies each	2,000	2,000	4,000	0
Fifteen minute Video/50 copies	3,000	9,000	12,000	0
Park guide booklet	0	0	0	8,000
Purchase guides for resale	0	0	0	2,000
Establish library	<u>500</u>	<u>500</u>	<u>1,000</u>	<u>500</u>
Interpretation subtotals	26,500	25,000	51,500	15,750

ITEM	YEARS			3-5
	1	2	Total	
<u>Training</u>				
Design/arrange E.D.'s SECOAST attachment	1,000	0	1,000	0
Conduct SECOAST attachment	3,500	0	3,500	0
Design/arrange mobile seminar	2,500	0	2,500	0
Conduct mobile seminar	0	15,000	15,000	0
Design guide training prg.	0	1,000	1,000	0
Conduct guide training prg.	0	1,500	1,500	0
Design record keeping course for fishermen	0	500	500	0
Conduct record keeping course for fishermen	0	1,500	1,500	0
Design/arrange E.D.'s Hol Chan attachment	0	1,000	1,000	0
Conduct Hol Chan attachment	0	3,500	3,500	0
E.D.'s other regional training	<u>0</u>	<u>0</u>	<u>0</u>	<u>5,500</u>
Training subtotals	7,000	24,000	31,000	5,000
CAPITAL INVESTMENTS				
Renovation of Ad. Cntr./Vis. Cntr.	7,500	7,500	15,000	0
Park Boat	6,000	0	6,000	0
Outboard Motor and back-up motor	4,000	0	4,000	0
Boat Equipment (two-way radio, etc.)	2,000	0	2,000	0
Marker Buoys for fish reserve	2,000	0	2,000	0
Mooring Buoys for pleasure boat anchoring	2,000	1,000	3,000	0
Office Equipment	5,000	0	5,000	0
Office Furniture	<u>3,000</u>	<u>0</u>	<u>3,000</u>	<u>0</u>
Capital Investments subtotals	31,500	8,500	40,000	0
TOTALS	117,062	107,062	224,124	133,136

Total for 5 years = U.S. \$357,260.00

Average operational costs per year, starting with third year = \$44,378.

Because the marine park represents a new initiative on the development scene, in Haiti, it will be important at the outset, to avoid common failures of past projects and slowly work towards the successful establishment of the marine park. For example, it will be useful to devise a series of institutional steps, with funding, which follow an evolutionary path. As each step is achieved, the next is embarked upon. Recipients of funds would have to earn a small "pot" of money and strictly account for it.

STEP 3 Arrange for a marine park specialist consultancy.

Although the Action Plan and the Executive Director, once hired, will be useful guides to the Advisory Committee, there will be times, during the first two years, when expertise will be required to answer both organizational and operational questions. Experience and knowledge, gained during the establishment of other marine parks and protected areas, could be usefully applied to Les Arcadins. It is proposed that the park budget provide funds for a specialist to work with the Advisory Committee on an as needed basis, during the two years. This individual would be responsible for either advising the Committee directly, or putting the Advisory Committee in touch with the appropriate persons or groups for further information. Three or four field trips to Haiti will probably be necessary.

STEP 4 Adopt park objectives and park boundaries.

The three major objectives for Les Arcadins Marine Park; protect biological diversity, advance tourism, and improve local fisheries, are closely related to one another and cannot be separated. To enhance tourism and improve local fisheries production, it is necessary to protect the marine resource at Les Arcadins. To protect the biological diversity of Les Arcadins, local fishermen must be assisted and a park must be established to generate funds for protection of the environment.

To successfully meet the objectives it will be necessary to designate a marine area large enough to protect biological diversity and yet small enough to be administered effectively. These objectives can be met, in the opinion of the project team, by including the three islands and the surrounding waters out to the 20 m contour (Fig. 3). This area would incorporate representative biotopes (i.e. reef crest habitats, deep and shallow coral patch reefs, seagrass beds) of the Les Arcadins region and incorporate, within the park, most of the ecological system.

Preliminary discussions with the fishermen indicate that they understand the purpose of the park and are willing to work with park management to advance their own interests. Fishing would be allowed within the boundaries of the park and regulated by the existing fisheries regulations. A fish reserve would be

set aside, inside the boundaries of the park, where no fishing would be permitted, thus creating a fish breeding, nursery area. Two options for the location of the fish reserve are discussed in the fisheries program, STEP 14. These recommendations will have to be discussed with the fishermen, once the Advisory Committee is convened and the Director has been hired.

STEP 5 Secure legal status.

The first and most important step in the path to park establishment will be to secure legal status for Les Arcadins Marine Park. This will entail having the islands and their surrounding waters set aside by Presidential decree as a Park. Clear legal establishment is mandatory if the marine park is to protect the biological diversity for the long term, and thereby attract tourists to Haiti.

STEP 6 Arrange for and fund temporary office support/Hire part-time secretary.

During the first six months, arrangements will have to be made, by the Advisory Committee, to hire a bookkeeper to set up the accounting system for the park, to provide all the necessary supplies and office equipment to begin park organization and operation and to hire a part-time secretary. The budget allocates funds for temporary office support at the Hotel Association headquarters and the Kaliko Dive Center office. Once the visitors center has been revovated, the park office can be located there, at the site.

PHASE II.

PHASE II begins the park administrative effort to establish an onsite presence at the site. These steps will mostly likely take place between the third month and the ninth month of park organization.

STEP 7 Hire the Executive Director.

The Executive Director to the Advisory Committee should be hired by the Hotel Association as a full-time director to serve the Committee and act as a manager, on a daily basis, for the park. Once in place, and after receiving training, he or she should be able to assume most of the responsibility for park administration and management. Due to the special nature of the post, the following qualifications are suggested, as a guide for candidates interested in the job.

Qualifications

Skill and knowledge necessary to be able to work

effectively with the Luly Cooperative leadership and with funding agencies, to develop the fish reserve program and the community outreach and development program.

Knowledge and experience in the marine environment; i.e. educational background in tropical marine ecology; SCUBA diver preferred.

Working knowledge of Creole.

Hands-on experience in renovation and construction of buildings desirable.

Ability to work harmoniously with a wide variety of people.

Experience with boats, motors, desirable.

Appreciation of the importance of environmental education with some experience in interpretative programs desirable.

STEP 8 Make final arrangements to acquire or lease the Visitor Center.

The owners of the Kaliko Beach Hotel have agreed to provide a building near the entrance to the hotel to serve as the administrative headquarters and the point of orientation for the visitor. As the Visitor Center is developed, it will be important to remember that the center only introduces the visitor to the resource and prepares him to enjoy the resource itself. It should not duplicate the resource.

Legal steps will need to be taken to clarify the terms under which the building becomes a visitors center. It is, of course, preferable if the building becomes the permanent property of the park, since major renovations will be needed to transform the building into a usable visitor center.

STEP 9 Establish a reference library.

A small reference library, on topics such as coral reef ecology and environmental conservation, established at the Visitor Center, could be used by the occasional visitor who wants more detailed information and by local residents, with an interest in the subject of marine life and the environment.

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PHASE III.

PHASE III should begin towards the end of the first year. These steps, during months nine through twelve, will initiate activities which will hopefully continue and improve as the marine park becomes better established.

STEP 10 Concurrently design modifications to the Visitor Center building and the overall interpretive program.

The modification of the building and the design and construction of the interpretive exhibits should be accomplished in relationship to one another. When completed, (this may take 5 years), the Visitor Center should contain a three-dimensional display of Les Arcadins, Luly, and the surrounding area and highlight other sites in the region which might be of interest to the visitor. Two major themes could be developed through exhibits. The first would focus on the biological diversity of Les Arcadins, especially the fascinating sponge life and feature the important role that coral reefs play in marine and coastal ecosystems. Threats to coral reefs and what is being done to protect them could also be highlighted. The second major theme could look at local peoples' relationship to the marine environment. Equipment used by the fishermen would be on display and its use explained. The exhibit could take the visitor through a typical fishing expedition and end with an illustration of park rules and activities. Exhibit text should be written in French, Creole, and English.

Because maintenance of equipment is difficult and a continuous electrical supply cannot be relied on at Kaliko, exhibits at the visitors center should be selected for low maintenance and minimum reliance on electrical power. Dioramas using natural lighting should be used wherever possible. At the time that the building's roof is replaced, construction which allows maximum natural lighting should be employed. Complex exhibits with moving parts, audio devices, or electronics are not recommended. Exhibit photographs and other materials, sensitive to humidity, should be laminated or set in airtight cabinets.

An environmental education specialist may have to be consulted, through a subcontract, for this task.

STEP 11 Purchase park equipment.

Park management will need to patrol the area, by boat, as often as possible, in order to conduct formal and informal educational activities, survey the use of the area by recreational visitors and fishermen, and periodically monitor the fish reserve. These activities will require a boat, large enough to make the four mile trip to and from the coast, and fast enough to maneuver easily among the islands. The proposed budget

provides for a boat, an outboard motor with a back-up motor and funds for boat maintenance and gas. Marker buoys for the fish reserve, mooring buoys for pleasure boat anchoring, office equipment and furniture, miscellaneous supplies, all need to be purchased by the end of the first year, to carry out the objectives of the park.

STEP 12 Preparation of promotional materials.

A one-page, fold-out brochure introducing Les Arcadins Marine Park, describing services and activities and the reasons for the park's establishment, should be designed, printed and available for use, during the first year. It should include a small map and accompanying chart of the area and list a telephone number for further information. (This could be distributed free at the center and at other locations in Haiti.)

During this same period, a four-color poster depicting the beauty and diversity of underwater life at Les Arcadins would also be produced. The poster could be used to promote the park by distributing it free to local hotels, other tourist facilities and government offices. It could also be sold at the Visitor Center to help generate needed income.

Photographs and slides of the land and waters of Les Arcadins, taken by the project team during the field work, are already available, for use by park management. A slide program about the park could be perfected, during this step, using the available slides from the project team and from members of the Dive Club. The Executive Director could use the slide program to give special presentations about the park to selected audiences, in Haiti, to help gain public support for the park and for environmental conservation. On some occasions, a fee could be charged to benefit park programs.

STEP 13 Begin renovation of the Visitor Center.

Once an agreement has been signed between the park administration and the owners of the proposed visitors center building, renovations, including a new roof, new plumbing for bathrooms and interior carpentry and painting will be necessary. With the necessary renovations, the Executive Director can set up a park office, establish the library and begin the interpretive program.

STEP 14 Initiate a fisheries program for July.

The community of reef fishes at Les Arcadins Islands and Recif Arcadins has relatively high species diversity and abundance compared to other reef systems in the Caribbean. Fish community structure is strongly influenced by algal grazers, such as damselfishes and parrotfishes, and by benthic invertebrate

feeders, such as wrasses. Top reef predators, such as large groupers, snappers and barracuda were rare.

Species diversity increased with reef surface area and was positively correlated with the number of species present. Coral/sponge bioherms presented the lowest amount of species, but had the highest number of species per unit area. Mean abundance of fish individuals ranged from 1.8 ind m² at deep patch reefs and 24.8 ind m² at coral/sponge bioherms.

The present status of the local fisheries appears to be in a precarious condition, with a relatively low production of fish per unit area of reef and/or seagrass in the shelf (9.5 kg/ha) compared to other estimates in the Caribbean. Also, a large proportion of the fisheries yield is met by species of small size and low commercial value. Most of the fishing effort is concentrated on shallow, demersal species. Neritic pelagic species represent an important component of fish trap yields. Offshore pelagic and deep water bottom fisheries are presently unexploited due to very limited economic and technological development.

The full-time fishermen of Luly are aware of the decline of the marine resource base due to siltation from eroding land areas, urban pollution from Port-au-Prince, and commercial collection of coral. They are also aware that, they are "cutting their own throats" when they consistently take juvenile fish and undersize lobster. They would like to fish the largely unexploited deep-water fish (below 150 ft) but cannot reach them with their primitive fishing gear and methods. While those that are not full-time fishermen in Luly cannot be said to have the same knowledge of the problem, these part-time fishermen are also aware of the decreasing amount and size of fish and the long-term disadvantages of the taking of juveniles.

To preserve and enhance fish diversity, the following park strategies are recommended as part of a local fisheries program.

1. Establish a fish reserve, in conjunction with the Luly cooperative.

This would be an area where no fishing is practiced, to increase the spawning biomass of commercially important and rare species which are affected by severe fishing pressure on the reefs. The reservoir zone should encompass all the physiographic zones characteristic of Les Arcadins reefs, i.e., a reef crest/A. palmata zone, shallow patch reefs, deep patch reefs, and the coral/sponge bioherm habitat, including the deep seagrass zone.

The idea of a fish reserve at Les Arcadins was discussed with the fishermen during the field work. The concept of a

reserve as a nursery and breeding ground for fish and other marine fauna which would, in the long term, increase the overall fish population, was immediately grasped and understood. However, park management should be aware of several issues which will make this management technique difficult to achieve.

First, the reserve will place a limitation on the Luly fishing territory which will add to the problem of already diminishing fish catches. This might endanger the economic survival of the 35% of the fishing population who are marginal. Les Arcadins lies within reach of boats which have no sails and is an important area for trap (nas) placement. Trap fishermen are usually those that have no other viable economic alternatives to fishing. Not only would making Les Arcadins a reserve directly affect these fishermen, other fishermen, even those with higher incomes, will not patrol and enforce the reserve because of their ethos of not preventing another from making a living. Alternative sources of income or larger yields from fishing will have to be found, if the fish reserve is to succeed. Finally, closing off an area to fishermen but allowing activities which would appear to favor the Haitian elite and foreigners, at the expense of the fishermen, may also engender resentment and hostility.

Two locations for a fish reserve are proposed for further discussion with Luly. Alternative I would set aside all the physiographic zones surrounding the entire island of Ti Teal (Fig. 4). This is the preferred alternative because it represents a reserve with a complete ecological system and an excellent chance of good results within a short period of time. This area is also easily recognizable by all users of the waters at Les Arcadins and could probably be monitored and regulated effectively. Alternative II, a quadrangle on the eastern end of Lighthouse Island, from the reef crest down to a depth of 20 m, proportional to the length dimension of the island (squared), would also be appropriate because the main habitats, mentioned previously, would also be well represented (Fig. 5). This is a smaller area and might be more acceptable to the fishing community. Periodic surveys to test the effectiveness of the fish reserve in terms of increased species diversity and abundance of commercially important and rare fish species will be needed at whichever site is selected.

2. Evaluate the actual fish marketing problems of Luly fishermen and provide alternatives that would offer a better economic compensation for their fishing effort.

3. Provide means to enable Haitian fishermen to buy fishing gear from other places in the Caribbean.

4. Offer a basic training course for Haitians on how to keep

records of the fundamental fisheries statistics for Luly. Initially, records of total daily catches and associated fishing effort data should be obtained. Species specific information could be progressively acquired.

5. Expand and upgrade local fisheries. There are two practical possibilities for expansion of fisheries for Haitian fishermen: (i) deep-sea hook and line reel fishing, (ii) fish attraction devices.

The shelf edge or break beyond the region of Les Arcadins is relatively wide with depths between 50 and 200 fathoms (100 - 400 m) (Fig. 3). The depth distribution of commercially important deep-water fish species, such as the silk snapper (Lutianus vivanus), voraz snapper (Pristipomoides macrophthalmus), blackfin snapper (Lutianus buccanella), and misty grouper (Epinephelus mystacinus) is known to be between 40 and 175 fathoms in the U.S. Virgin Islands (Brownell and Rainey, 1971). From personal interviews with Haitian fishermen it was clear that silk snapper and blackfin snapper are present in the shelf break off Les Arcadins where they have been occasionally caught. Access to shelf break waters is possible with some of the best Haitian fishing boats, but essential fishing gear is lacking. More detailed information about the optimal fishing depth for each of these four fishes and methods of deep-water fishing are found in the Section 2, Appendix III.

A good alternative to the lack of a motorized fishing fleet is a Fish Attracting Device (FAD). The FAD can be anchored off the shelf break in about 400-600 m depth where pelagic fishes are accessible. In concept, the FAD acts as a surface, or subsurface primary substrate where a food web eventually develops to the top predators level. Aggregations of small fish (generally jacks, Decapterus spp. and juvenile Caranx spp.) serve as forage fish for larger predators, such as barracuda, jacks, mackerel, wahoo, tunas, dolphin fish, sharks, and billfishes. The FAO, in Haiti, has begun working with the Luly Cooperative to place FAD's offshore of Luly.

Operational Stage

PHASE IV.

PHASE IV begins the operations phase of the park. By this time, the Executive Director has been in place for at least six months and the work of developing the public awareness and environmental education program and training programs can go forward. All the steps in PHASE IV should commence during the beginning of the second year and eventually become integrated into permanent park operations programs.

STEP 15 Initiate the interpretive program.

The park interpretive program should: (1) interpret the marine, land, and cultural resources for the visitor, (2) gain the visitor's cooperation in following park regulations and protecting marine resources, and (3) ensure visitor safety. Interpretive information about the park would be offered at the Visitor Center and the Kaliko Dive Center, located on the water.

A variety of educational aids will be required, for use by the interpretive program and for park promotion, including a video for installation at the airport and at local hotels, a coloring book for use in the schools, and several conservation booklets for distribution in the local community. In addition, a small number of commercial publications should be printed and offered for sale at the Visitor Center, to earn needed income for the park. All publications, produced by the center, should be available in French, Creole, and English. Section 6 of the Resource Document summarizes education aids to be used in the Interpretive Program (Appendix IV).

The interpretive program will need to recruit individuals to act as guides to carry out the park program. Private, local, certified SCUBA divers, members of the Dive Club, fishermen and other local people interested in the flora and fauna of Les Arcadins can be trained in interpretive techniques, park management objectives, coral reef ecology, identification of coral reef species, coral reef conservation, tide pool and salt pond ecology, and the history and culture of the area. These guides would accompany the visitor and provide on-site interpretation. Several tours could be developed for Lighthouse Island, including a tide pool walk, a walking tour noting the birds of the salt pond, the history of Lighthouse Island, and an underwater "tour" featuring the coral and sponges of Les Arcadins. Within this interpretive corp, several languages such as English and French, should be spoken.

Eventually, the park could perhaps attract a concession for a glass bottom boat. This would make the reefs accessible to non-swimmers and others who prefer a boat ride to snorkeling or diving. A coral reef interpreter, from the Visitor Center, would accompany visitors during the cruise. (The training of the interpreters, the installation of interpretive exhibits and the development of interpretive themes, stories, and trails on Lighthouse Island will probably need to be done by a specialist as part of a subcontract.)

STEP 16 Develop the national, international education program.

The geographic focus, at the national educational level, should be the capital city of Port-au-Prince. Its principle message should emphasize Les Arcadins as an important Haitian

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treasure. It should stress the potential benefits that the park will bring to Haiti and publicize Les Arcadins as a good example of wise use of natural resources and sustainable development. The most appropriate media for the general program will be radio, press coverage, television, posters, and slide programs. Radio and press coverage can be achieved through interviews and an open house during the park's official opening. Actual footage of the site will be necessary for television. This can be accomplished by utilizing short takes from a video that will have to be produced. Periodic special activities, at the park, will help keep Les Arcadins in the news. Posters can be distributed throughout the city and displayed in shops. Copies of the posters can also be given to government officials working in tourism, fisheries, and other appropriate offices. Slide programs can be used by the Executive Director and the Advisory Committee for special presentations to businessmen, government officials, civic clubs, and conservation organizations.

Park management will need to work closely with the Office du Tourisme to ensure that the marine park is included in international promotion campaigns. The Director should also work closely with the hotel managers and dive centers to develop publicity and tour packages featuring Les Arcadins Marine Park. A brochure providing basic information can be distributed at Haitian hotels and mailed to travel agencies in other countries. Diving specialty magazines such as Skin Diver should receive brochures, a poster, and be invited to visit the park. Major airlines, serving Haiti, should also be informed about Les Arcadins. Arrangements to display the park poster, distribute brochures and offer a video at the Port-au-Prince international airport should be made.

STEP 17 Initiate park management training.

Because national parks, protected areas, and resource management are not commonly understood concepts in Haiti, the training of staff, guides, advisory members, and community leaders must be a key element of the Action Plan. A customized mobile seminar should be designed to permit the Executive Director and advisory board members to visit other marine parks in the Caribbean region. These visits should offer opportunities to see first-hand, a variety of management and development approaches for marine protected areas and the daily requirements of park management. Once back in Haiti, the shared experiences of the trip will give the group a frame of reference from which to make park management decisions.

At least two, but preferably three different sites are recommended for the mobile seminar. Possible sites include the Hol Chan Marine Reserve and Half Moon Cay in Belize; several sites in the Cayman Islands; Bonaire, Curacao, and Saba Underwater Parks in the Netherlands Antilles. Some of these

sites are managed by government whereas others are managed by NGOs. This seminar should take place during the second year of park operation.

About six months after the mobile seminar has taken place, a short-term attachment for the Executive Director should be arranged at an actively managed marine protected area such as the Hol Chan Marine Reserve in Belize. The 4-6 week attachment would provide training in all aspects of the day-to-day operation of a marine reserve. This attachment would prepare park management to handle the routine management responsibilities of Les Arcadins Marine Park. See the Resource Document, Section 6, Appendix III - Hol Chan Marine Reserve, for more information about the Hol Chan Reserve.

Since the Executive Director will also be responsible for conducting the community outreach and development program for Les Arcadins, it would be useful for him to visit a site where such a program is being conducted. A short-term attachment with the USAID/WWF Southeast Coast Project in St. Lucia, would offer practical experience in community outreach. This training should occur soon after the Director is hired. Appendix II in Section 6 of the Resource Document demonstrates how well it matches the resource use issues associated with Les Arcadins. This program will have to be designed and coordinated through a subcontract.

STEP 18 Establish a Community Outreach and Development Program.

Local support for the park will depend on the extent to which the program reaches the needs of Luly. Early discussions with members of the community indicate that they can accept the idea of the park and understand its usefulness but they want to have a role in developing management strategies. An education program for local fishermen that only provides information about the importance of the park and need for protection, will be of dubious value since it would have little impact on the immediate issue of poverty which drives resource over-exploitation. For example, a school program in Luly that focuses only on the need to conserve marine resources will have little, if any, impact on the overfishing at Les Arcadins. Such a program will have almost no meaning for the local fisherman.

The Executive Director should keep local community members informed of park activities and seek local advice as appropriate, and involve key members of the community in park monitoring. Local fishermen are much more likely to understand and believe in the value of the park and fish reserve if they are involved in gathering the data. Periodic monitoring could also serve as a small source of income for some of the fishermen.

The residents of Luly have expressed an urgent need to have

a literacy program for adults. While such a program is not within the marine park's scope, working with the community to start such a program would demonstrate a genuine concern for the needs of the community. There are several things that the Director could offer to do without taking away from his other duties. He could assist the local fishermen by contacting private organizations through HAVA, for technical and financial support for a literacy program, give assistance in proposal writing, and serve on a local committee. If classroom space is not available in Luly, the Visitor Center could be used after hours. Several advanced students might be able to help by composing park publications in Creole, or assisting in other activities where reading and writing Creole are needed.

The community has also expressed a basic need for equipment such as boat motors, fishing materials, and refrigerators. These are all items that would help to improve the catch and increase their control over marketing the fish. Again, such activities are outside a traditional marine park program, but by taking an interest and assisting the fishermen in acquiring the equipment and necessary training for its use, the Director could win the fishermen's support for the park as well as reduce fishing pressure. Park management should work closely with the Luly Cooperative to help the cooperative contact agencies such as UNDP/FAO for technical and financial assistance.

The Executive Director will also be responsible for developing local programs with the fishermen to ensure that they will receive some direct benefits from the park. This could include working with the cooperative to sell fish directly to the local hotels, setting up fishermen operated traditional sail boat rides and fishing tours, training some of the fishermen to be park guides, and establishing a monitoring program as mentioned above.

Because working with Luly's fishermen is the first priority of the park's outreach and development program, only limited activities with the public schools are anticipated for the first few years. There is one State primary school in Luly, two small, private primary schools, and one community-run primary school as yet not functioning due to lack of funds for teachers' salaries. The nearby roadside community of Williamson has a USAID-funded community school, which is attended by some of the Luly children. Eventually activities could include visits to primary and secondary schools to help publicize the park and explain why it was established, provide reading materials to local schools on a variety of environmental topics (these materials are particularly important since the schools have almost no resource materials), and visits to the park by students. After the first two years the park's educational program with schools can be expanded. See the Resource Document, Section 6, Appendix I - La Planada Nature Reserve for an example of what kind of program could be developed

at Les Arcadins.

VII. RECOMMENDED ACTIONS FOR YEARS THREE, FOUR AND FIVE.

Initiation of the Research Program

Due to their distance from the coast and, therefore, their presumably pollution-free environment, Les Arcadins offers a unique opportunity to study the underlying causes of present algal proliferation in Caribbean waters, in the absence of human-induced effects. The results of these studies could be of great importance to the rest of the Caribbean. This same argument can also be made offered for using Les Arcadins as a test center for the study of the causes of recent, Caribbean-wide coral bleaching (loss of symbiotic zooxanthellae) (Goenaga, 1987; Williams *et al.* 1987). These studies have a very high priority and should be carried out as soon as a research program can be developed for the Les Arcadins Marine Park.

Continuation of the Community Outreach Program

Park management should continue to help the community of Luly by helping the fisheries cooperative to perform the following tasks:

1. Conduct a census of both fishermen and boats in order to determine the exact numbers and details of the relationships among fishermen and their factors of production. (Without this information it will be difficult to judge the exact numbers of fishermen using Les Arcadins, the possible collective strength of the cooperative, and the degree to which fishermen are in "control" of the distribution system outside the immediate area).
2. Conduct a census detailing the numbers, and kinds, of encumbered relations between fishermen and fish-buyers to reveal the ability of fishermen to act as independent agents.
3. Prepare a more complete, and extended (at least a year long), stock assessment survey, including not only numbers, sizes and species of fish being harvested, but also beach and market prices and any systematic relation these may have to overall production figures. This would more precisely gauge the economic situation of the area fishermen. The Luly Cooperative has already demonstrated an interest and a willingness to participate in such an assessment and could provide selected individuals to receive training and actually carry out the survey.

Note: Ideally, the surveys listed above

should be extended to include the fishermen from neighboring areas who are currently fishing in Les Arcadins waters. These men would also be directly affected by the establishment of a marine park, and the Luly Cooperative would require them to be members in order to fish in the Les Arcadins/Luly territory.

4. Assess the wholesale export market, especially the *pwason wouj* exchange circuit centered in Port-au-Prince, and reports of foreign fishing. Further information is necessary in order to block further environmentally destructive commercial collection of coral and shells in the Les Arcadins area. There is also a reliable report that foreign companies, especially American ones out of Miami, are beginning to exploit Haitian waters on an industrial scale. If fishermen are assisted in acquiring the equipment and methods necessary to exploit so far untouched fishing grounds, this would put them in direct competition with such foreign companies.

5. Provide incentives and mechanisms for selected Haitian students to participate in fisheries and marine sciences programs available in some universities of the Caribbean region, and or other places in the U. S. A. and Europe. This approach represent the seeding of future professors, scientists and administrators of Haitian marine resources. At the same time, this action brings, in the short term, confidence and support of the local community to the long term management plan. Likewise, training opportunities in mechanics of outboard motors, refrigeration systems and general boat handling and marine technical services should be offered to Haitians, as to provide support services to the modest technological progress of the fisheries and community living standard.

Continuation of the Interpretive and Training program

1. Produce a park guide booklet for sale by park management.

2. Support attendance by the Executive Director to short-term training opportunities in the Caribbean region.

To increase the Director's ability to manage more complex management concerns, he/she should attend short workshops on specific marine reserve management topics as opportunities arise within the Caribbean region. For example, in March 1989, a workshop on marine and coastal protected areas was held in Dominica. It trained participants in project development, proposal writing, and fund raising.

VIII. CONCLUSION

In Haiti, limited coastal access and the absence of large scale development along the coast, have thus far combined to protect most of the country's coastal and marine habitats from the damaging effects of commercial and industrial pollution so evident in other parts of the Caribbean. That is not to say, however, that Haiti does not have other environmental problems in the coastal zone. Population pressures and the lack of arable land have forced peasant farmers onto the steep slopes near the sea, causing nearshore siltation of coral reefs and seagrass beds from damaging agricultural practices. To compound this problem, poverty and overpopulation are causing artisanal fishermen to fish nearshore waters without benefit of modern training and equipment, technical assistance and marketing infrastructure, resulting in the serious depletion of fish stocks and the disruption of the marine ecological system.

Although Haiti's vast coastal and marine resources are largely unexplored, a few scientific studies and observations point to a marine ecological system of high biological diversity. The establishment of a marine park at Les Arcadins where a park authority could actually work with the fishermen to manage the marine resource, and, at the same time, create a special public awareness among visitors and Haitians alike, of the importance of protecting the marine environment, would be an excellent addition to present efforts to preserve biological diversity in this part of the Greater Antilles.

The social, economic and ecological benefits of maintaining and increasing renewable fisheries resources, derived from the park plan could be substantial to the nearby residents. Lessons learned from the park fisheries program at Luly, could be usefully applied to other fishing communities, in Haiti, and throughout the Caribbean, wherever artisanal fishing communities have similar economic and environmental circumstances.

The economic benefits from tourism, to the hotels of the region and indirectly to the government of Haiti, could also be substantial as Les Arcadins Marine Park becomes better known as a major diving center and marine park in the Caribbean. In the past, the tourist sector of the Les Arcadins region contributed significantly to the Haitian economy, bringing employment and income to the people of the region and revenues to the government. New marketing elements, such as the creation of a marine park, could help to rebuild Haiti's image abroad and bring foreign tourists back to the region.

The eighteen steps towards park establishment, outlined in the Draft Action Plan, were carefully researched and thoughtfully prepared. With sufficient funding, they represent a workable plan for establishment of Haiti's first marine park at Les Arcadins.

PROPOSED WORK PLAN
DEVELOPMENT OF AN ACTION PLAN FOR THE ESTABLISHMENT
OF LES ARCADINS MARINE PARK, PORT-AU-PRINCE, HAITI

AUGUST 31, 1987 TO OCTOBER 30, 1989

Prepared by Evelyn Wilcox, project leader

March 1988

YEAR ONE - 12 MONTHS

Task I.

Preparatory Work in the Field. 5 person days

Team participant:

Evelyn Wilcox, project leader

Prior to the start of field work in Haiti, Evelyn Wilcox will meet with appropriate U.S.A.I.D. Mission staff and the Haiti Hotel Association to set up a working office and make preparatory arrangements. The office will be located at the Kaliko Beach Hotel, adjacent to the study site, and will serve as a base of operations for the project during the two year period. The following tasks will be performed by the project leader during task one.

Subtask A.

Meet with the appropriate personnel from the U.S. A.I.D. Mission, the Haitian Hotel Association, and the Kaliko Beach Hotel.

Subtask B.

Arrange for a working office at the Kaliko Beach Hotel.

Subtask C.

Negotiate, with the Kaliko Beach Hotel, the per diem costs

Subtask D.

Arrange for use of equipment needed by the biologic team, such as access to boats and scuba diving equipment.

Task II.

Biologic Survey. 85 person days

Team participants:

Carlos Goenaga, marine biologist	20 days
Reni Garcia, fisheries biologist	20 days
Vance Vincente, marine biologist	20 days
Alexis Gardella, cultural anthropologist	10 days
Evelyn Wilcox, project leader	15 days

Subtask A.

Preparation of the study outline for the biologic survey.

A study outline reflecting the objectives of the project will be prepared to guide the subsequent field work. The outline will be prepared by the team biologists, in consultation with the cultural anthropologist, and with the approval of the project leader. The study outline will be based on visits to Les Arcadins and the neighboring fishing banks during the first week of the field work. If conditions permit, local fishermen from Luly will also be consulted. The outline will form the framework for the field work and the written report.

Subtask B.

Field work at the site.

The biologic field work will be performed over a three week period. The field work will assess the coral reef benthos surrounding the three small islands at Les Arcadins, assess the artisanal fisheries at the nearby fishing village of Luly and develop hypotheses concerning the functional aspects and health status of coral reefs around Les Arcadins. Linear transect, visual census and photographic transect methods will be used.

A combination of two underwater census techniques will be used to characterize fish species composition, population densities, and relative abundance. The visual censusing technique will be used to prepare a species list and assess

the relative abundance at Les Arcadins and, as much as possible, at the nearby fishing banks. Population densities will be estimated using line transect methods. These census methods will be used to develop baseline information against which comparisons may be made to determine population fluctuations resulting from man-made or natural perturbations. Photographic documentation of typical fish assemblages at each sampling station will be provided.

Fishery data will be collected with the help of the local artisanal fishery wherever possible, and with the help of the cultural anthropologist and local researchers. Collection of data may take the form of interviews with fishermen to determine the species fished, the type of boats and fishing gear being used, the number of fishermen, the fishing areas, and whether the fish are used for home consumption or trade. If possible, an estimate of the quantities of fish that are taken over some specified unit of time will be obtained. This information will also be used in the socio-economic analysis.

Deliverable: Draft report of the biologic survey of Les Arcadins and nearby fishing banks.

Subtask C.

Project Consultation following the field work and preparation of final report. 30 days

Team participants:

Carlos Goenaga

Reni Garcia

Vance Vincente

Deliverable: Final report of the biological survey.

Task III.

Cultural Analysis. 20 person days

Team participant:

Alexis Gardella, cultural anthropologist

The plan for Les Arcadins Marine Park will take into consideration the impacts of park designation on the neighboring village of Luly. The following subtasks will be performed by the cultural anthropologist. The information will be collected via sensitive and adaptive use of open-ended interviews with selected individuals, participant observations, and informal discussions

sensitive and adaptive use of open-ended interviews with selected individuals, participant observations, and informal discussions with groups of individuals. Short-term, locally hired research assistance will be used for the collection of quantitative data (if this becomes necessary) or for the collection of information closed to the anthropologist because of his/her sex or status as a foreigner.

The extent of the field work in the village will depend on the political and cultural forces present in Haiti during the two year period of the grant. It is impossible to predict how much communication between the village and the project will be possible during the two years. The objective of the cultural analysis, however, remains, to provide marine park management with guidelines for future cooperation and participation with the fishing community of Luly.

Subtask A.

Describe and analyse the general social parameters of the village of Luly.

Subtask B.

Characterize, in detail, the fishing population of Luly.

Subtask C.

Solicit traditional knowledge on the life-cycles of marine animals and other items of marine biology relevant to the marine park concept. This will be collected from at least three different social groups; the fishermen; the general adult population of Lully, and the school children.

Subtask D.

Analyze the global social situation of Lully and make recommendations as to where to socially situate a group or organization (or individual) that would be able to take on the responsibility of advising, cooperating and participating with the relevant marine park authorities. This analysis will include a discussion of political realities on the area and how these could impact on either the marine park itself or on the relationship between Lully and the marine park personnel.

Subtask E.

Recommend strategies for pursuing environmental education programs in the area, including the kind of information that should be disseminated in this way and which groups should be targeted.

Subtask F.

Recommend a relevant sociological research program for (a) on-going activities in Lully and the surrounding area, and (b) for any future fisheries/ecological research projects in Haiti.

Subtask G. 10 person days

Preparation of the Cultural Analysis Report, in consultation with the project team.

Deliverable: Cultural analysis report.

Task IV.

Preliminary Socio-economic Analysis 28 person days:
(7 days field work, 21 days research and report preparation)

Team participant:

Tom Deyo, socio-economic planner

The plan for the establishment of a park at Les Arcadins will include an examination of the economic costs and benefits of park designation to the primary users of the area; the tourists and the artisanal fishermen. To understand the various weights given to a number of potentially overlapping economic and social goals, the socio-economist will undertake a series of analyses and interviews, identified as subtasks below.

The data for this analysis will be collected from both primary and secondary sources. Secondary sources will include published material from U.S. government agencies, the World Bank, the Inter-american Development Bank, the Organization of American States, the Peace Corps, and other academic publications. Primary sources, to the extent possible, will be information collected by on-site interviews with local tourist business people, local fishermen and wholesalers. The cultural anthropologist, through her work in the village of Lully and through her contacts with groups and individuals, will collect the data within the village. The primary data from the village for the socio-economic analysis will depend on her access to the villagers, within the time restraints and political restraints of the grant, and the villagers' willingness to relate information.

Due to the funding limitations of the grant and the apparent lack of available data on tourism, the socio-economic analysis will be preliminary. However, in the course of the study, the socio-economist will prepare a recommended work plan for a more definitive study, should a more detailed examination of the tourist industry in Haiti be desired.

Subtask A.

Collect information related to: local population and household growth; local economic standards of the population; employment tasks of the local population; any revenues generated by the various industries of the local population and the tourist industry in the immediate area; the economic dependencies of the local villagers, local businesses and the tourist industry.

Subtask B

Briefly describe the socio-economic setting of the village of Luly and the local tourist industry through identification of the local employment industries, the relationship of these industries to the area of the proposed marine park; the economic interdependence and the interrelationships of all industries in the area; and the economic relationship of Luly and Les Arcadins to the economy of Haiti.

Subtask C

Understand the fundamental economic relationship between: the local fishermen and the tourist industry; the local fishermen and the quantity of fish caught in the study area; and the local fishermen and the wholesalers.

Subtask D.

Evaluate the economic conditions of Luly and the local tourist industry by characterizing the economic vitality over time of the local fishermen, other local employment groups, and the local tourist industry; and by analyzing the economic dependence of the fishing and tourist industries to the resources of the marine park area.

Subtask E.

Present selected case studies of other marine protected areas of parks and the effect they have produced on the local economy and population groups. From these case studies, draw relationships between the employment and economic environments of the case studies and those of the Les Arcadins area; evaluate the economic cost and benefit elements of the case studies and indicate how these might be applied to the Les Arcadins area.

Subtask F.

Analyze the economic potential of creating a marine park at Les Arcadins on the local fishing and tourist industries and the relationships each of the various industries should have with the resources of the park.

Subtask G. 7 person days

Project consultation and final report preparation.

Deliverable: Preliminary socio-economic analysis report.

YEAR TWO - 14 MONTHS

Task V.

Institutional Analysis. 38 person days

Team participants:

Public Policy Specialist	10 days
Roger Dunwell, local attorney	10 days
Local Research Assistant	8 days
Evelyn Wilcox, project leader	5 days
Dennis Glick, parks specialist	5 days

Funding for Haiti's recently designated national parks, thus far, has been entirely from external sources. There is no national park service and no one place within the numerous government offices where the parks are presently being administered. The Institutional Analysis will address two fundamental issues; park administration and funding. The following subtasks will be performed by the public policy specialist with the assistance of the local attorney, a local research assistant, the project leader, and the parks specialist.

Subtask A.

Determine the legal status of Les Arcadins.

Les Arcadins and surrounding waters, although never designated as a protected area, have already been singled out by the decree of the President as having special significance (November 11, 1983). The status of Les

Arcadins, e.g. public versus private domain, will be determined by this subtask.

Subtask B.

Develop at least two alternatives for park administration at the proposed Les Arcadins Marine Park. Criteria for finding an appropriate lead agency/ organization will include:

- o a useful precedent for action in connection with other protected area management;
- o an arrangement, no matter how small, that will have stability and regular funding;
- o enforcement support (legal authority) of the government; and
- o the probability of immediate results.

Subtask C.

Develop park administration and management guidelines. The recommended guidelines for administration and management will include:

- o park boundaries based primarily on the biologic and cultural analyses;
- o proposed alternatives for park administration; and
- o park regulations based primarily on existing Haitian environmental regulations.

Subtask D.

Provide a list of all actions needed for park designation that would allow Les Arcadins to be legally established immediately after the report is published.

Subtask E. 6 days

Project consultation and final report preparation.

Deliverable: Institutional analysis report.

Task VI.

Development of a Preliminary Environmental Education Program.
15 person days

Team participant:

Gus Medina, environmental education specialist

A preliminary environmental education program for Les Arcadins Marine Park will be designed, using the biologic, cultural, socio-economic and institutional analyses, produced by the project team as a basis. This information will be supplemented with a field investigation to select the most common, effective and most readily available media with which to reach target audiences, identified by the project team as important to the success of the park and to the conservation of marine resources.

Subtask A.

Determine the need and the most important audiences in Haiti for an environmental education and public awareness program concerning Les Arcadins and other marine resources.

Subtask B.

Determine the most effective media for an environmental education and public awareness program in Haiti, concerning Les Arcadins.

Subtask C.

Identify existing educational materials that could be easily adapted for use in Haiti.

Subtask D.

Design a preliminary environmental education program for the proposed Les Arcadins Marine Park.

Subtask E.

Project consultation and final report preparation. 5 days

Deliverable: Preliminary environmental education program.

Task VII.

Team participants:

Evelyn Wilcox, project leader 20 days
Dennis Glick, parks planning specialist 11 days
All project team members

Using the reports prepared by the project team, World Wildlife Fund and Wilcox Associates will produce an Action Plan which will outline, in a phased approach, the fundamental actions necessary for the Haitian government to establish Les Arcadins National Marine Park. The Action Plan will indicate, as completely as possible, which institution should take responsibility for which action and at which phase the action should take place. A short-term management strategy for the park will be provided to take the proposed marine park through its first two years. Planning recommendations for future action to promote long-term maintenance and use of the park will also be included.

The final report will include graphics and maps that can be adapted later by the park administration for on-site hand-outs and educational materials.

Deliverable: Action plan for establishment of Les Arcadins National Marine Park.

PROPOSED WORK PLAN SCHEDULE *

	September through August								September through October													
	9	10	11	12	1	2	3	4	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Field Preparation								---														
Biologic Survey									▲	○	●											
Cultural Analysis										▲		○	●									
Preliminary Socio-Economic Analysis										▲		○	●									
Institutional Analysis										▲			○	●								
Preliminary Envir. Educ. Program													○	●								
Prepare Action Plan																						

- Internal Deliverables:
- Continuous Activity
 - - - Intermittent Activity
 - ▲ Study Outline
 - Preliminary Draft Report
 - Draft Report
- Deliverables to USAID:
- Draft Action Plan
 - Final Action Plan

* This schedule is dependent upon the political situation.