CORPORATION FOR THE SUSTAINABLE DEVELOPMENT OF THE ARCHIPELAGO OF SAN ANDRES, OLD PROVIDENCE AND SANTA CATALINA
CORALINA

CARIBBEAN ARCHIPELAGO BIOSPHERE RESERVE: REGIONAL MARINE PROTECTED AREA SYSTEM EDUCATION PLAN
PROJECT YEAR 1

(September 2000-August 2001)

Text: Cesar Robinson
Education specialist
Dianira Calderon
Publicist

1.INTRODUCTION

The Archipelago of San Andres, Old Providence and Santa Catalina was declared as Biosphere Reserve by UNESCO Program called MAB (Man and Biosphere) on the 10th of November, 2000. The Seaflower Biosphere Reserve is the largest marine one in the world today, this is the reason why most of its protected areas are in the sea. This recognition will bring about benefits such as: protection of fisheries and agriculture, stimulation of ecotourism to attract researchers and teachers from all over the world to do studies on environmental issues (bioprospecting), etc. The MPAs Project is the Biosphere Reserve in the sea and its mission is to conserve biodiversity and ensure sustainable use of coastal and marine resources while enhancing equitable benefit distribution for the Archipelago community.

The System of Marine Protected Areas (MPAs) is a crucial tool to foster conservation and proper use and zoning of marine and coastal areas.

Stakeholders are aware of the negative impacts that exist on marine and coastal species and ecosystems due to overfishing, byfishing, anchoring, poor management of wastes, deforestation, etc., and would like to see conches and fish in abundance on nearby fishing grounds as they used to in the past. According to experts, Marine Protected Areas Projects are possible solution to these problems if stakeholders and community in general are willing to respect Multiple Use Zoning. This is the reason why communitary involvement is

important and where the outreach education program is crucial to foster necessary consciousness.

2.DESCRIPTION OF PROBLEMS

Marine and Coastal ecosystems as well as species of the Archipelago of San Andres, Old Providence and Santa Catalina have been impacted over the years by human activities. The purposes are basically massive tourism and thus economic interests. This is reflected in conches depletion in nearby traditional fishing grounds as well as of lobsters and fish due to overfishing as the result of big and constant demands by hotels and restaurants.

Today, Artisanal Fishermen of San Andres Island are concentrating their activities in the Southern Keys (ESE and SSW) precisely because species on nearby shoals and banks are not as plentiful as they used to be, this means that going to them is not as feasible as going to the faraway keys mentioned, although this demands bigger boats and expenses that maybe are not always recovered when catches are not effective. In Old Providence and Santa Catalina most Artisanal fishers are now fishing outside the barrier reef because fish are not as abundant as before inside the reef on traditional fishing grounds.
Anchoring practices have also been destroying corals as well as spear gun fishing.
The most commented problem at meetings and workshops is industrial fishing, therefore it could be considered as a critical one.
Siltation is another which is due to deforestation but the most serious one is the lack of a sewage system and therefore the direct deposit of human wastes into the sea.

2.1 Fishing Methods

Traditional fishing methods in the Archipelago are:
- Line fishing: practiced both on shallow and deep water.
- Lung diving for conch and lobster.(without spear gun)
- Fish pots
- Sardine or sprat nets.

Improper fishing methods practiced in the Archipelago today:
- Spear gun fishing.
- Long line fishing.

- Lobster traps.
- Compressor fishing
- Thank fishing, etc.

2.2Industrial Fishing

Industrial fishing is considered as the main conflict in the Archipelago marine areas which takes place primarily in the area of the northern cays. Industrial fishing license have traditionally been issued on the mainland to companies that have no local base, employ not one islander, and generally land no product in the Archipelago. Resolution 568 stipulated that department government from May, 2000 will have the responsibility of implementing the departmental fishing board and other mechanisms needed to comply with law 47. Successful functioning of this board will ensure that actions related to fisheries licenses are carried out locally. INPA and the Ministry of Agriculture have retained the power to set quotas. Consequently this delegation of functions is regarded as unsatisfactory by artisanal fishers.

2.3Deforestation

Deforestation as a result of clearing up land for farming and cattle raising in the Archipelago has caused erosion which through water streams (gullies) produces a negative impact on coastal resources. Dirt or mud is accumulated in coastal areas (sedimentation) and even the coral barrier reef is influenced by this. Although people do not farm at present as much as they did in the past, in Old Providence there is still a lot of cattle raising and therefore land clearing which have an indirect but strong influence on coastal ecosystems.

3. LEGISLATION AND POLICY

Legal-political Conception of Environmental Education

In International Seminar on Environmental Education celebrated in Belgrado between October the 13th and the 22nd, 1975, the goal of Environmental Education was understood as “the need to help people and human groups to acquire social values and a profound interest for environment that should impulse them to partake actively in its protection and betterment and to stimulate necessary skills to solve environmental problems.”

In World Intergovernmental Conference on Environment issues (Tiblissi, URSS, October 14th to 26th, 1977), the goal suggested for environmental education was "prepare conscious citizens that are interested in environment as a whole and its social problems whom must acquire knowledge, have reasons, become compromised and assume necessary attitudes to do collective and individual works in order to solve existing problems and always looking forward to prevent possible new ones."

National Government through INDERENA published the National Code of Renewable Natural Resources and Environment Protection, Decree 2811/74 in which importance was given to Education System participation at al level.

Later, Decree 377/78 regulated Articles 14 and 17 of Decree 2811/74 establishing on one hand Ecology and Environmental Education Advising Commission and on the other pointing out National Education Ministry's role as the organization to coordinate curriculum program for preschool, basic primary , basic secondary, vocational, formal, informal and adult education levels considering the following components: ecology, environment preservation and renewable natural resources (Decree 1337/78 art.1). At the same time school roles are considered as : "those that cooperate in community work playing the role activity centers when necessary and collecting information on identified regional problems based on such activities."

The project complements Caribbean regional actions and international directives of biodiversity conservation such as Agenda 21 and the Convention on Biodiversity. This convention (national ratification, law 165/95) calls for the development of protected areas in its Marine and Coastal Action Plan delineated by the Jakarta Mandate (November, 1995) which also emphasizes the establishment of responsible fishing policies, sustainable artisanal fisheries management and respect for traditional sea tenure. The IUCN divides the world into 18 oceanic regions to establish a global representative system of MPAs in which the Wider Caribbean is region 7 (Kelleher, 1995). The World Bank map of this region (ibid.) reveals a serious lack of MPAs in the western Caribbean ; except for a handful of reserve areas on the Central American coast, there are no functioning MPAs in this section. The convention for the protection and Development of the Marine Environment of the Wider Caribbean Region requires special management and protection, and the protocol to this convention demands the establishment of protected areas to ensure endangered species conservation. The United Nations Convention on the law of the Sea exacts the coastal states develop conservation and

management measures to ensure that living resources in the EEZ are not endangered by over-exploitation.

At the national level, Colombia has enacted legislation that can most effectively be implemented by establishing MPAs. The Constitution (article 310) gives Archipelago natives special status as an ethnic minority group with a culture identity distinct from the dominant society, requiring that special programs be developed locally to protect their environment and culture; the survival of which depend on coastal an marine resources and the natives' traditional rights of tenure to the Archipelago's marine areas. Law 99/93 declared the Archipelago as Biosphere Reserve and named CORALINA as the agency responsible for realizing this delegation at the national and international levels. Law 47/93 calls for the establishment of artisanal fishing areas in the Archipelago, law 136/94 protects the Archipelago's mangroves, resolution 1426/96 defines the Archipelago's corals as special environmental management zones, and executive resolution 023/71 declares a National Reserve Zone in San Andres Bay from Johnny Key to Haines Key which is included in the IUCN list of reserves requiring management support. Resolution 1021/95 established the only national park in the Archipelago, Old Providence McBean. Lagoon, which includes a coastal and marine component that will be strengthened by the implementation of a regional system of MPAs. Locally, The Environmental Plan for Sustainable Development of the Archipelago: 1998-2010 (approved, 1998) requires the delimitation of marine areas to conserve biodiversity, special measures to recover endangered species, and realignment and demarcation of coastal and marine reserves to protect species habitat.

4. VISION

Get the Archipelago's community and especially coastal and marine stakeholders aware of the importance of marine species and ecosystem conservation and recovery for sustainable development and long term relation with environment.

This can be accomplished through implementing and stewardship of the MPAs System with the support of stakeholders and sound practices of community within zoned areas that will bring about social, historic and cultural benefits to satisfy present population needs as well as those of the future generations.

5. GENERAL OBJECTIVES :

By the end of year 2002 we will have done the following:

- Offered community general information on MPAs.
- Created awareness in population of its capacity to influence decisions that affect the Archipelago and the importance of MPAs System as an alternative to foster sustainable development and equitable benefits.
- Developed new ways of approaching the Archipelago's surroundings considering the MPAs system's mission, objectives and functions.
- Extended the importance of Biosphere Reserve and Marine Protected Areas concepts.
- Trained teachers and students in MPAs concept.
- Conserved Archipelago's existing habitats and recovered its marine resources and biodiversity.
- Fostered compatible practices between activities done in marine zoned areas and sustainable development based on Biosphere Reserve's goals.
- Achieved population's consciousness on importance of communitary participation to implement and manage MPAs system for future generations cultural, historic and social benefits.
- Sound practices on natural resources to guarantee MPAs system goals achievement.
- Fostered community awareness about long-term sustainable benefits that conservation can provide to our marine ecosystems through MPAs Projects.
- Provided community with information so they can make good decisions about the use of our marine and coastal resources.

6. STRATEGIES

6.1 Stakeholders

a. Artisanal Fishers

Problem: Coastal traditional fishing grounds are overfished, this has created the need of fishers to go very far away to make fishing a "feasible" activity. Most fishermen in SAI work currently in the Southern Cays (ESE and SSW); those of OP/SC used to have good catches inside the barrier reef but at present most of them must go outside it since fish have become scarce where they were plentiful in the past.

Conches and lobsters are practically wiped out in the Archipelago because of excess presure on them. Fishers often fish juveniles ones not allowing species to reach adult state.

b. Divers

1. Lung divers: They usually fish for lobsters using "grabs"(a big hook attached to a piece of stick or pipe), they also fish conches (tiny ones at present) and spear fish.

Problem: Overfish has depleted proper resources in coastal waters, thus, stress has been increased and is stronger each day on juvenile lobsters, conches and fish due to the fact that these stakeholders depend on this activity economically.

2. Scuba divers: They usually do sport diving (observation), although some artisanal fishers in SAI have complained about massive lobster extraction by scuba divers in the Cove Seaside area at night.

Problem: These stakeholders think that "subsistent and hustler divers" are destroying coral reef, coral patches and attractive recreational dive shoals as they try to satisfy their basic daily food needs. This affect scuba divers in the sense that each they there is less to be seen on these sites, therefore tourists expectations are not fulfilled.

c. Schools

1. Students: Main target groups are 9^{th} , 10^{th} and 11^{th} year students, secondary level.

Problem: Being the "Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System" a new project in our Archipelago, students know nothing about it but as future adults, and why not key stakeholders, they need to be concerned of what it is all about: the reasons of developing it, its mission, objetctives, functions, type of zones and their purpose, stakeholders participation, etc.

2.Teachers: Formal education teachers in general but special target groups are Science teachers.

Problem: Teachers just like students know nothing about our Regional Marine Protected Area System but could be excellent multipliers if they are properly trained. Specially Science teachers could play a crucial role in teaching pertinent concepts to students after integrating them in yearly official program and/or curriculum.

Churches: In the Archipelago of San Andres, old Providence and Santa Catalina there are three traditional religious organizations: Baptist, Adventist and Catholic. The first is the oldest and it has the biggest amount of followers.

Problem: Church members are not currently aware of our Achipelago Regional Marine Protected Area System, but as well recognized and admired people within the society in terms of communitary decision taking, they need to be informed and get involved in order to help making it real.

d. NGOs: There are two existing types in the Archipelago: 1. Traditional users and Environmental NGOs. The latest are special target groups since they have to do directly with environmental issues, nevertheless the others are also important.

Problem: They are not concerned of our Regional Marine Protected Area System and the benefits that it will bring about. As legal established environmental organizations they need to be informed in order to take part in its development.

e. Communitary Action Groups: Popular organizations that are legally established to help solve basic communitary problems such as housing, drinking water system, etc. They are supported economically by national government.

Problem: Very few of these organizations are currently active in the Archipelago, this will make it difficult to get outreach education program to all of them. They need to get involved in the Regional Marine Protected Area System because they represent the basis of the popula sector.

7.ACTIVITIES AND ACTIONS TO BE TAKEN

7.1 Training

7.1.1MPA General Introduction Classroom Activities

7.1.1.1 Target Groups: 4th , 5th , 6th , 7th , 8th 9th , 10th and 11th year students in SAI and OP/SC.

"MPA's should be designed to accomplish as many conservation objectives as possible and to protect and restore particular vital parts of coastal or ocean ecosystem (for example critical habitats such as prime coral reefs or mangrove forests.) " (**Salm Rodney, Clark Jhon and Siirila Erkki, Marine and Coastal Protected Areas, a guide for planners and managers).**

7.1.1.1.1 School Program 1: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Classroom Activities.

7.1.1.1.1.1 Objectives: get students aware of what Marine Protected Areas are, their importance to marine ecosystems, their benefits to stakeholders and community in general and how all of us can help make them real.

7.1.1.1. 1. 2 Schedule:

Table 1: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Classroom Activity in SAI

Target Schools in SAI	Level	Date	Time
Sagrada Familia	10th & 11th	Feb.13th	11:00 a.m.-12 m.
CEMED	7th A	Feb. 14th	10:30-11:30 a.m.
Colegio Deptal. Natania	9th	Feb. 15th	3:00-4:00 p.m.
Bolivariano	11th	November 02	10:00 a.m.
CAJASAI	9th & 10th	Feb. 27th	3:00- 4:00 p.m.
First Baptist School	9th	Feb. 14th	9:00-10:00 a.m.
Christian Mission	4th & 5th	Feb. 12th	10:30-11:30 a.m.
Escuela Nacional	4th & 5th	Feb. 13th	8:00-9:00 a.m.

CEMED	7th B	Feb. 22nd	9:00-10:00 a.m.
Adventist School	9th	May 9th	9:00 a.m.-12:00 m

Table 2: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Classroom Activity in OP/SC

Target Schools in OP/SC	Level	Date	Time
Adventist School	6th to 10th	March 15th	9:00-10:00 a.m.
María Inmaculada	4th & 5th	March 16th	9:20-10:20 a.m.
Junin School	6th & 7th	March 20th	8:00-9:00 a.m.
Junin School (Adults)	6thto 9th	March 20th	5:00-7:00 p.m.
Junin School	8th to 9th	March 21st	8:00-9:00 a.m.
Junin School	10th	March 22nd	8:00-9:00 a.m.
Junin School	11th	April 30th	8:00-9:00 a.m.
Francisco José de Caldas School	4th	May 2nd	9:00-9:45 a. m.
Bombona School	4th	May 3rd	9:00-9:45 a. m.

7.1.1.1.1.3 AGENDA

7.1.1.1.1.3.1Steps:

- Greetings (3')
- Brief introduction on MPA projects (mission, objectives and functions) (10')
- Show video (20')
- Talk about the archipelago MPAs project (names, zoning process, stakeholders participation, etc.).(10')
- Questions (10')
- Important facts about MPAs project (5')
- Handouts (3')

7.1.1.1.1.3.1.1Steps Development:

7.1.1.1.1.3.1.2

- Greetings: Giovana Peñaloza, OP/SC MPA project coordinator or Evans Baldonado, MPA project communitary promoter and I will give our names,

say that we come from CORALINA and that we work with the MPA project. (3')

- Brief introduction on MPA project (general): Project's mission, objectives and functions.Tell them to watch SMMA video carefully in order to see if MPAs will be useful for the archipelago.(10')
- Show video (20')
- Talk about the archipelago MPA project (names, zoning process, stakeholders participation, etc.).(10')
- Questions (10')

Important facts about MPA project: (5'). 1. Nearly 70% of fish all over the world spawn in mangroves and tidal areas, 2. Coral reefs are home to more than 30% of all fish species, 3. Reef ecosystems are the breeding ground for 90% of locally harvested sea life in small tropical islands, 4. 70% of the world's fishing grounds have been over-fished according to the United Nations, 5. Over 2/3 of the world's commercially fished stocks are overfished or already at their maximum sustainable limit, 6. 90% of marine catch comes from coastal waters which are the most damaged parts of the sea, 7. More that 3.5 billion people depend on oceans for their primary food source. Within 20 years, this number is expected to climb to 7 billion and the estimated maximum sustainable fishing amount of 100 million tons per year is already being exceeded. 8. An INVEMAR study revealed that 50% of the reefs in San Andres coastal waters are dead, 9. Marine protected areas are proven to replenish fisheries in 2-10 years, 10. Marine protected areas are tested and proven to: Restore marine habitats, increase fishing catch, restore numbers of threatened species like turtles, conchs and lobsters, protect the rights of native fishermen, attract tourists and help the economy, reduce user conflicts, restore the natural ecosystem balance, 11. An estimated 21 million barrels of oil wash into the sea every year from roads and the land, 12. Every year for the past 10 years an average of 600.000 barrels of oil has spilled into the sea from shipping accidents, 13. ¾ of the world's oxygen supply is produced by tinny green plants or algae called phytoplanktons who live in sea. Contaminating the seas harms phytoplanktons and their ability to supply the earth with this oxygen that is necessary for all life.

- Handouts (3'): we give each student a copy of Flyer 1:What is happening to the sea in the Seaflower Biosphere Reserve?

7.1.1.1.1.3.2 Resources:

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System communitary promoter and capacity builder.

b. Materials and equipments: Flyer 1: "what is happening to the sea in the Seaflower Biosphere Reserve?, SMMA video, Photocopies, transparences, overhead projector, etc.

7.2MPA General Introduction Meetings

Stakeholders: Church members, communitary action groups, NGOs, etc.

7.2.1 Program 1: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Meetings.

7.2.1.1 Objectives:

Take general information on MPA project to Community: church members, Communitary action groups, communty meetings by neighborhoods, Institutions, NGOs, etc.

7.2.2 Schedule:

Table 3: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Meeting in SAI

Target Groups SAI	Date	Time
CHURCHES:		
Sound Bay Baptist Church	April 16th	
Adventist Church	April 28th	
Lynval 1 Com.Baptist Church	April 29th	
Huffy Christian Mission Church	June 10th	
ENVIRONMENTAL NGOs:		
San José Obrero	May 19th	7:30 P.M. - 8:20 P.M.
Barrack New Face		
Cove Alliance		
Fundación Madre Tierra		
Fundación Paraíso		
Nuevo Archipiélago		
Porcicultores		
COMMUNITARY ACTION GROUPS:		
César Gaviria	May 23rd	8:00 P.M.- 8:45 P.M.

Natania	June 3rd	4:00 p.m.
San Luís		
Perry Hill		
Cove		

Table 4: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System General Introduction Meeting in OP/SC

Target Groups OP/SC	**Date**	**Time**
CHURCHES:		
Central Baptist Church	March 16th	7:30 p.m.- 8:30 p.m.
Salt Creek Baptist Church	March 21th	7:00 p.m. – 8:00 p.m.
Adventist Church Town	March 26th	7:00 p.m. – 7:30 p.m.
ENVIRONMENTAL NGOs:		
Trees & Reefs Foundation	March 26th	5:00 p.m.- 6:00 p.m.
COMMUNITARY ACTION GROUPS:		

7.2.3 AGENDA

7.2.3.1Steps:

- Greetings (3')
- Brief introduction on MPAs projects (mission, objectives and functions) (10')
- Show video (20')
- Talk about the archipelago MPAs project (names, zoning process, stakeholders participation, etc.).(10')
- Questions (10')
- Important facts about project (5')
- Handouts (3')

7.2.3.1.1Steps Development:

- Greetings: Giovana Peñaloza, OP/SC MPA project coordinator or Evans Baldonado, MPA project communitary promoter and I will give our names, say that we come from CORALINA and that we work with the MPA project. (3')
- Brief introduction on MPAs projects (general):Project's mission, objectives and functions.Tell them to watch SMMA video carefully in order to see if MPAs will be useful for the archipelago.(10')
- Show video (20')
- Talk about the archipelago MPAs project (names, zoning process, stakeholders participation, etc.),(10')
- Questions (10')
- Important facts about MPAs project: (5'). 1. Nearly 70% of fish all over the world spawn in mangroves and tidal areas, 2. Coral reefs are home to more than 30% of all fish species, 3. Reef ecosystems are the breeding ground for 90% of locally harvested sea life in small tropical islands, 4. 70% of the world's fishing grounds have been over-fished according to the United Nations, 5. Over 2/3 of the world's commercially fished stocks are overfished or already at their maximum sustainable limit, 6. 90% of marine catch comes from coastal waters which are the most damaged parts of the sea, 7. More that 3.5 billion people depend on oceans for their primary food source. Within 20 years, this number is expected to climb to 7 billion and the estimated maximum sustainable fishing amount of 100 million tons per year is already being exceeded. 8. An INVEMAR study revealed that 50% of the reefs in San Andres coastal waters are dead, 9. Marine protected areas are proven to replenish fisheries in 2-10 years, 10. Marine protected areas are tested and proven to: Restore marine habitats, increase fishing catch, restore numbers of threatened species like turtles, conchs and lobsters, protect the rights of native fishermen, attract tourists and help the

economy, reduce user conflicts, restore the natural ecosystem balance, 11. An estimated 21 million barrels of oil wash into the sea every year from roads and the land, 12. Every year for the past 10 years an average of 600.000 barrels of oil has spilled into the sea from shipping accidents, 13. ¾ of the world's oxygen supply is produced by tinny green plants or algae called phytoplanktons who live in sea. Contaminating the seas harms phytoplanktons and their ability to supply the earth with this oxygen that is necessary for all life.

- Handouts (3'): we give each person a copy of Flyer 1:What is happening to the sea in Seaflower Biosphere Reserve?

7.2.3.1.1.2 Resources:

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, communitary promoter and capacity builder.
b. Materials and equipments: Flyer 1: "what is happening to the sea in the Seaflower Biosphere Reserve?, SMMA video, Photocopies, transparences, overhead projector, etc.

7.3 Teachers Training on Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System

Stakeholders: Formal education teachers but considering Science teachers as special target groups.

7.3.1 Objectives:

a. Offer formal education teachers of primary and secondary levels of the Archipelago basic information on the "Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System" so that they will be able to multiply it among their students and colleagues.

b. Stimulate teachers, especially those of Science to include information and practical didactic activities related to the "Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System" in their curriculum in order to develop them during the academic year as official topics.

c. Furnish teachers, specially those of Science with necessary resources so they will be able to do an effective job as they try to influence students

attitude toward our marine sorrounding and underwater species which have been and are very important in our economic and cultural evolution.

d. Get teachers committed to the fact of self-involving as well as involving students in supporting the project development as a positive action toward conservation and recovery of coastal and marine ecosystems and species.

7.3.2 Strategies

7.3.2.1 Workshops on Regional Marine Protected Area System

7.3.3 Agenda

7.3.3.1 Steps Development

Day 1

- Welcome (CORALINA General Director or Subdirector opens workshop with pertinent general information) (5')
- Introduction on Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System (Project's mission, objectives and functions are presented to workshop attendats) (15')
- ??

8.PUBLICITY PLAN

8.1 Objectives:

a. Promote MPAs Project within Archipelago's community taking advantage of existing media, institutions, NGOs, etc.

b. Foster conservation awareness through MPAs Project among stakeholders, general community, managers, politicians, administrators and private sector.

c. Explain through public information the long-term sustainable benefits that MPAs systems can provide.

8.2 Strategies:

a. Extend radio report on MPAs Project to community periodically.

b. Show video on MPAs Project on local TV station and cable TV periodically.

c. Give Flyer 1: What is happening to our sea in the Seaflower Biosphere Reserve? to stakeholders and general community at meetings and workshops.
d. Do door to door campaign with Flyer 1 with secondary students support.

8.3 PUBLICITY ACTIVITIES

8.3.1 Schedule:

Table 5 Publiciy activities

ACTIVITY	PLACE	DATE	TIME
Radio Report	SAI: Voice of the Islands (Bill Francis program)	February 15th & 22nd	12:30 a.m.
Radio Report	OP/SC: Voice of the Islands (Providence today program by Annie Chapman and Rosana Díaz)	April 7th	10:00 m.
TV Show of Video on MPAs (SMMA)			

8.4 Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, publicist, communitary promoter and capacity builder.

b. Materials and equipments: Flyer 1: “what is happening to the sea in the Seaflower Biosphere Reserve?, SMMA video.

9. DIDACTIC MATERIALS

9.1 Objectives:

a. Foster conservation awareness through MPA Project among stakeholders and general community.
b. Produce Flyer 1: What is happening to the sea in the Seaflower Biosphere Reserve?
c. Produce Booklet 1: A Boy, a man and the sea
d. Develop Flyer 2

9.2 Flyer 1: What is happening to the sea in the Seaflower Biosphere Reserve?.

9.2.1 Objective: extend general information of MPA project to people and stimulate good feelings toward the sea and the lives within it since we depend on them for food and because being islands inhabitants they are our main richness source.

9.2.2 Strategy:

- Hand out Flyer 1 in meetings and workshop held with stakeholders, general public, churches, schools, communitary action groups, NGOs, etc.

Table 6 Flyer 1: "What is happening to the sea in the Seaflower Biosphere Reserve?"

Flyer 1	Target Group	Place	Date
WHSSBR	**9th year students**	**Adventist school, SAI**	**May 9th**
WHSSBR	**San José Obrero Communitary Action Group**	**Communitary Action meeting hall, SAI**	**May 19th**
WHSSBR	**Cesar Gaviria Communitary Action Group**	**Preschool classroom at Cesar Gaviria's**	**May 23rd**

		neighborhood, SAI	
WHSSBR	Fishers and Divers	Zoning Consultation Workshop "Plenary", OP/SC	May 3rd
WHSSBR	Natania Communitary Action Group	Communitary Hall SAI	June 3rd
WHSSBR	Rocky Point Community	Rocky Point Baptist Church OP/SC	June 6th
WHSSBR	Bottom House Community	Boyaca School OP/SC	June 4th
WHSSBR	Freetown Community	Convent OP/SC	June 5th
WHSSBR	South West Bay Community	Bombona School OP/SC	June 5th
WHSSBR	Mc Bean Lagoon Park Staff	Mc Bean Lagoon Park Office	June 6th
WHSSBR	Old Town Community	Yan Yan place	June 6th
WHSSBR	Santa Catalina Community	Villas Santa Catalina Hotel	June 7th
WHSSBR	Jones Point, Town and Caballete Communities	Junin School in Town	June 7th
WHSSBR	SENA Students	SENA	June 12th
WHSSBR	Mountain Community	Montañita School	June 13th
WHSSBR	Freshwater Bay Community	Miss Elma Restaurant	June 13th
WHSSBR	OP/SC Interinstitutional Group	CORALINA's Office	June 14th
WHSSBR	SENA Students	SENA	June 14th

9.2.3 Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, publicist, communitary promoter and capacity builder.
b. Materials and equipments: Flyer 1: "what is happening to the sea in the Seaflower Biosphere Reserve?, SMMA video.

9.3 Flyer 2 (?)

9.3.1Objectives

9.3.2 Strategy: Flyer 2 will be taken to target groups meetings, workshop, general activities, etc.

9.3.2.1 Schedule:

Table 7

Flyer 2	Target Group	Place	Date

9.3.2.2 Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, publicist, communitary promoter and capacity builder.
b. Materials and equipments: Flyer 1: "what is happening to the sea in the Seaflower Biosphere Reserve?, SMMA video.

9.4 Booklet 1: A boy, a man and the sea

9.4.1 Objectives:

a. Create awareness in children of how meaningful the sea is to us if we should look at all the benefits it offers.

b. Point out how badly human beigns have treated it to the extend that at present it has lost a big part of its richness but that we all, **here and now,** can help preserve lives within it.

9.4.2 Strategy:

- Booklet will be introduced to students at schools basically.

9.4.2.1 Schedule:

Table8: Booklet 1 "A Boy, a man and the sea"

Booklet 1	Target Group	Place	Date

9.4.2.2 Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, publicist, communitary promoter and capacity builder.

b. Materials and equipments: Booklet 1 "A Boy, a man and the sea", SMMA video.

10 ZONING CONSULTATION

10.1 ZONING CONSULTATION WORKSHOPS IN SAI

10.1.1 Objevtives:

a. Stakeholders will identify marine sites on maps according to their activities.
b. Stakeholders will discuss on sites importance in order to point out where each type of zone could be best established according to their most appropriate properties or features
c. Stimulate stakeholders to negotiate areas where conflicts are evident taking into account common interests.
d. Get stakeholders to make suggestions of MPA external boundaries.

10.1.2 Strategies

a. Hold a Regional Marine Protected Area System water sports stakeholders' workshop to do preliminary mapping to identify possible multiple use zones in SAI coastal waters. Due to the amount of stakeholders (17) and the different type of services that they offer and perform, they will be distributed in 4 groups: At table #1 there will be the scuba divers, at table #2 jet skies owners and operators, at table #3 Kayaks, Sunfish, Windsurf, Catamaran and sea bicycles owners and operators and at table 4 there will be the Semisubmersible, Launches, Yachts and Worms owners and operators who separately by tables will map marine sites where they currently operate. As they finish this first exercise a representative of each group passes forward to show all the attendants what they had done at each table. Where there are conflicts, this is, different activities being developed in common areas and creating stress on ecosystems, stakeholders will negotiate on realocating activities, this means that they should be willing to give up certain sites in order to have others where their crafts do not impact ecosystem negatively and where they can operate in better conditions. The final sites that they all agree on will be identified on one big map.

b. Since artisanal fishers have already done preliminary mapping, after exercises from both water sports users and artisanal fishers are analysed in the GIS system, CORALINA will call a plenary workshop getting both stakeholders groups together to negotiate areas of common interests where conflicts among them are presented.

10.1.2.1 Schedule:

Table 9: zoning consultation workshop SAI

Activity	Target group	Place	Date
Zoning	Stakeholders	Hotel Casablanca	Feb. 27, 2001

Consultation Workshop	(Water Sports)		

10.1.3 Agenda:

10.1.3.1Steps:

a. Welcome and brief Introduction to workshop (30')
b. Organize stakeholders on tables according to marine and coastal activities they perform.. Group 1: Divers, Group2: Jet Ski, Group3: Kayaks, Sunfish, Windsurf, Bicycles, Catamaran, Group 4: Semisubmersible, Launches, Yachts, Worms. (5')
c. Stakeholders are given instructions on what are the outcomes expected from workshop (5')
d. Stakeholders work identifying and mapping their work sites (45')
e. Establishing zones (No-entry, No-take, Artisanal fishing, Special use, Multiple or general use) (45')
F. Break (20')
g. Stakeholders get back to work to agree definite zoning among the four groups on one map (60')

10.1.3.1.1. Steps development:

a. Welcome and brief Introduction to workshop was done by Dr. June Marie Mow, General Director of CORALINA. She thanked stakeholders for attending the workshop and pointed out the importance of their participation and concern for the Regional Marine Protected Area System effective development. She also said that one of the project's strategies to set up the system is to take some water sports stakeholders to Bonaire in order to see how the diving system operates there which could be a good reference to organize ours. Later, the Saint Lucia Soufriere Marine Management Areas (SMMA) video was shown to give stakeholders an idea of what an ongoing marine management area system was.

b. Claudia Mc Cormick, the Regional Marine Protected Area System marine biologist organized stakeholders at tables according to marine and coastal activities they performed. Group 1 was the biggest and corresponded to scuba divers, Group 2 corresponded to Jet Ski owners and operators, Group 3 corresponded to Kayaks, Sunfish, Windsurf, Bicycles, and Catamaran owners and operators and Group 4 corresponded to Semisubmersible, Launches, Yachts and Worms owners and operators.

c. Stakeholders were given instructions on what were the outcomes expected from workshop. Claudia Mc Cormick placed a small map and markers on each table and explained to stakeholders that first of all they should discuss, agree and mark their current work sites on map, then choose a spokesman who would pass forward to explain what they had done.

d. Stakeholders got to work identifying and mapping their work sites (Multiple or general use zones), then proposed possible No-entry and No-take zones. Later, spokesmen passed forward, placed their maps on a flip chart and explained what was the consensus at each table.

e. A 20 minute Break was taken to have a refreshment before Stakeholders got back to work to agree on water sports general preleminary zoning on one big map considering what they had previously done on small ones. At this level there were no great conflicts to be negotiated or solved since each group had chosen the sites that they are using at present that either CORALINA or the captain of port had authorized them. The real problem on which there was general agreement was that hustler fishers had been depleting species on reef and nearby shoals that were very attractive scuba dive sites in the past.

Observation: A stakeholder thought that the Regional Marine Protected Area System was not necessary in the Archipelago because to his concern the coastal and marine ecosystems were still in pretty good shape. His comment was rejected by the other water sports operators who told him that they had been in the business longer than him and had witnessed for instance the distruction of huge sea grass bed areas.

10.1.3.1.2. Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System marine biologist, communitary promoter and capacity builder.
b. Materials and equipments: VHS, T.V., maps, color markers, SMMA video.

10.2 ZONING CONSULTATION WORKSHOPS IN OP/SC

10.2.1 Artisanal Fishers and Water Sports Zoning Consultation Workshops in OP/SC

10.2.1.1 Objectives

a. Artisanal Fishers and scuba divers instructors of OP/SC will identify Artisanal fishing and scuba diving zones of the islands of Old Providence and Santa Catalina on maps which will be their working areas once Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System is set up.
b. These stakeholders will also identify possible no-take and no-entry zones as well as OP/SC MPA external boundaries.

10.2.1.2 Strategies

a. Do zoning consultation workshops with Artisanal fishermen by neighborhoods.
b. Do zoning consultation workshops with scuba divers instructors.
c. Hold a plenary meeting with both Artisanal fishers and scuba divers instructors to have a concensus on OP/SC preliminary MPA zoning.

10.2.1.3 Agenda

10.2.1.3.1 Steps development

a. Mission, objectives and functions of Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System are explained to stakeholders.

b. SMMA video is shown as an interesting reference and stimulation.
c. Fishers are divided in groups and are given maps of the islands including barrier reef, shoals, banks and fishing/diving grounds and areas on which after getting to agreement identify and mark zones of interest and possible external boundaries.
d. After getting to agreement a spokesman of each group passes forward and explains to audience areas identified and reasons to take decisions.
e. Later, all stakeholders get to concensus in plenary workshop on one big map.

10.2.1.4 Resources

a. Human: Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System coordinator in OP/SC, and education specialist.
b. Materials and equipments: VHS, T.V., overhead projector, maps, color markers, SMMA video, flyer 1: "what is happening to the sea in the Seaflower Biosphere Reserve?"

OUTCOMES OF OP/SC ARTISANAL FISHERMEN AND SCUBA DIVERS ZONING CONSULTATION WORKSHOPS

a. Santa Catalina, Jones Point, Lazy Hill and Town Artisanal Fishermen Zoning Consultation workshop. Held on March 27th at Junin School in Town.

CONCLUSIONS

Table # 1

- The whole barrier reef should be No-take zone.
- One mile of the island in Lazy Hill is ocean, so the concept of one mile of the island as No-take zone should be flexible (Harvey Robinson).
- Meeting should be held by neighborhood because there is only one person here from South West Bay and nobody from Bottom House.
- We must abolish fish pots.

Table# 2

- The whole reef must be Protected.
- From Crab Key to Catalina Keys and from there to the last light buoy, then from there to South West Bay should be No-take zones (one mile off the island).
- Outside the reef you can do any kind of marine activity.
- Between South West Bay and Lazy Hill, one mile of the island, you can do artisanal fishing and sport diving.
- Mc Bean Lagoon park should be No-take zone.
- During the Grouper rowing season outside Low Key should be considered as No-entry zone (January and February) (Uriah Steele)
- A Recreational zone could be inside Low Key (inside the reef) and all around Catalina Keys as well as around the Three Brothers Keys.

Table # 3

- Instead of one mile around the island, half of mile should be Protected (No-take zone)
- In certain places could be one mile but in others half a mile (Harvey Robinson)
- For the future we need maps with names of shoals and water depth.

RECOMENDATIONS

- Do meetings by neighborhood.
- From each section 3 stakeholders should attend all zoning workshops in neighborhoods.
- Need maps with specific information for future zoning workshops.

QUESTIONS AND ANSWERS

In your concept what are the positive aspects of the MPAs Project?
The protection of the islands (Eusebio Webster)

Take headache of me (Antonio Archbold)

In your concept what are the negative aspects of the MPAs Project?
Actions are too slow (Antonio Archbold)
We need Money to work with (Jacinto Brown)
Instead of beginning here we should have started to work with the Northern Keys (Uriah Steele)

What is your commitment to this project?
You can depend on me and call me whenever you need me (Uriah Steele)
We must respect the ideas expressed here (Santiago Taylor).
We must stick together and fulfill with decisions taken (Harvey Robinson).
I will contribute with all my experience as long as I live (Antonio Archbold).

What should be CORALINA's role in this process?
Speed up the process some more (Harvey Robinson)
We should start work on the keys as quick as possible (Uriah Steele and Jacinto Brown).
Do something about the gullies because they take too much garbage to the sea (Jessie Archbold).
Mr. Antonio Archbold wants to know if the harbor is going to be drudged and if CORALINA has anything to do with this. He thinks that it is a good idea because Santa Catalina could be rebuilt then.
Uriah Steele wants to know if there is any restriction to fish on the bridge.

b. South West Bay Artisanal Fishers Zoning Consultation Workshop Held on March 23d at Bombona School in South West Bay.

CONCLUSIONS

- The Islands entire coastal waters and marine areas should be Artisanal Fishers Zone
- External Boundaries: are marked with blue on corresponding map
- Use buoys to mark external boundaries.

COMMENTS

- Thomas Livingston manifested his experience as scuba diver coming across hundreds of meters of foreign industrial fishers' lobster traps full of product. He said that whenever he finds them he destroys them.
- Fabio Jay denounced the fact that while he and his companions were forbidden to fish conches in the northern keys, they had witnessed how Vikingos fishers exploited this resource during a banned season as the species was replenishing abundantly. Since they could not take it to Cartagena it was sold to Honduranians vessels at sea.
- Zoning is not necessary because marine resources cannot finish.

c. Mountain and Boxon Artisanal Fishers Zoning Consultation Workshop

It was planned to be carried out at Junin School in Town on April 25th. Only one stakeholder showed up (Charles Hawkins from the Boxon neighborhood). He thought that it was not appropriate for him to do zoning alone. We accepted his proposal.

d. Rocky Point and Bailey Artisanal Fishers Zoning Consultation Workshop held at the Adventist school in Rocky Point on April 26th

CONCLUSIONS

- Box drawn on map in blue corresponds to external boundaries.
- Artisanal fishing zones are: 1. From north of Crab Cay over to Point of Reef, inside the reef. 2. From Newball reef to in front of Crab Cay outside the barrier reef (like 200 meters from it). 3. They also fish sometimes on Rocky Cay. Artisanal fishing zones are identified with red ink on corresponding map.
- No-entry zones in marked with green on map. It goes from inside Crab Cay down to Rocky Point because there are many young lobsters in such area.
- The method to mark external boundaries is using buoys or flags.

COMMENTS

Mr. Aristides Dawkins said that right in front of Rocky Point on the nearby sea grass bed going toward the Three Brothers Cays they could find conches

and good fish a few years ago but that now a days divers take up everything with tanks and spear guns.

Mr.Maximo Livingston said that there were a lot of conches from Morgan's Head to South West Bay and that in a period of two hour he would pick up more than five hundred conches in past years but that he did not know that dumping the shells right there would cause the species to run off. He also aid that in a meeting with CMC he had spoken about hawksbills in this sense: " When I was young many people used to fish them because it was their favorite Sunday Meal. Today you can't find one." He also said that when he was a sailor on a boat he had bought five of them in Puerto Limon, Costa Rica at a good price but he did not know that it was forbidden by law to eat them in that country, so as they were about to sail, the coast guard stopped them and took away the turtles.

Mr. Dawkins said that whenever he goes to fish, divers come up with their spear guns and shoot the fish right where he is fishing, leaving nothing for him. He said that divers do not respect artisanal fishers.

Mr. Livingston said that local authorities should try to recover the cay where birds used to lay eggs. He remembered that his father and neighbors used to bring thousand of them from there when he was a boy.

e.Old Town, Freetown and Camp Artisanal Fishers Zoning Workshop held at Junin school in Old Town on April 27th.

CONCLUSIONS

- No-entry zone (green ink on corresponding map): From in front of Lazy Hill to Santa Catalina.
- Artisanal Fishing zones (blue ink on map): Under the light house. From Low Cay to in front of Santa Catalina outside the reef. On North East Ban. From in front of Santa Catalina to in front of Fresh Water Bay outside the reef. From in front of South West Bay to in front of Smooth Water Bay outside the reef. Places that people most fish are: Cuba, Tony white Bottom and North East Bank.
- People do lungs diving all around the reef both inside and outside, close to it.
- External boundaries: from outside North East Bank all around the islands. (marked with red on map).

- To mark external boundaries you can use buoys, as well boundaries should appear on OP/SC chart.

COMMENTS

William Robinson said that years ago you could find conches from in front of Lazy Hill to Santa Catalina but that at present they are scarce in this area.
"Industrial fishers set lobster traps from North East Bank to outside the Light House on the bank, this does not allow lobsters to reach the islands. Lobsters go into traps easily but cannot find their way back out because their antennas are tangled up on them."
"Industrial fishing vessels come very close to Old Providence, you can see them from Mountain at night. They set up to 800 traps each time."
Later he said that we should try to ban long line fishing. He also thinks that the MPAs system is a very positive idea for our Islands. He has seen how they function in different Caribbean islands visited, specially in Saint Lucia and Tortola.

f. Bottom House Artisanal Fishers Zoning Consultation Workshop. Held on June the 8th at Boyaca school.

CONCLUSIONS

ARTISANAL FISHING ZONES

- When it is rough we fish from crab Cay down to Snapper Shoal inside the reef.
- When it is calm we work from crab Cay down to Snapper Shoal outside the reef.
- We may go three times a year to Newball Reef and to the Southern bank.

NO-TAKE ZONE

- From bellow Bottom House to Blowing Hole (light house) on the grass out to the white.

EXTERNAL BOUNDARIES

- Two miles from the reef and right around the islands.

QUESTION

- Are you going to forbid thank fishing outside the reef?

COMMENTS

- I am not against the idea of preservation but it is the way CORALINA inspectors approach us. They just come with the policemen and take away the product then give it to the prisoners. That is not right, I would prefer to pay a fine (Benigno Hooker).
- We cannot understand how the foreigners have more rights than the locals to fish in the cays.
- I used to buy hawksbill shells from the Port Captains in San Andres to resell them in Colon, Panama when I was a sailor. So, as you can notice the government itself makes profit off the resources and we cannot.
- Our area is too small, sometimes it is very hard for us to get outside the reef.
- There is a place bellow June fish Bar where there is a lot of conches but it is too deep (16 phathoms). After a while the conches will come back to the shallow.
- The reef blocks off the conches from coming in to the shallow.
- We think that tank fishing should have a chance to work but at certain depth (80 phathom for instance) but not shallower.
- Sometimes while we are diving we see the conches crawl from the deep to the shallow.
- Some people go on the edge to dodge the conches when they are coming from the deep and catch them.
- In holy week I saw a lot of small conches in the area that we want to be no-take. I think that in three years they will grow big (Conroy Henry).
- It would be good to meet with all the fishermen to take final decisions (Conroy Henry).

g. OP/SC Scuba Divers Zoning Consultation Workshop. Held in Lazy Hill on April the 4th at Lazy Hill Cultural Center.

CONCLUSIONS

- The whole reef must be considered as No-take zone (Johnny Perez)

- Between the two red dots on the map should be for snorkeling only (recreational zone) (Bedda Vasquez).
- Scuba diving could be done in Blue Hole, at the shoal called Felipe (between Blue Hole and a point called The Convent, in front of Fresh Water Bay).
- From The Elbow to Low Key should be considered as No-take zone (Bedda Vasquez).
- Outside Low Key is good for scuba diving.
- External Boundaries should be the entire islands platform.
- Between The Elbow and Taylor Reef should be No-entry zone (Bedda Vasquez).
- 100 meters inside and outside the reef is good for dive fishing (lungs)during certain time of the year.
- Between South West Bay and Old Town should be considered as No-take zone for certain time (we consider this because there is where the conches used to be). The other side of the island can remain opened because it is near the reef and whenever it blows these places are quickly replenished.
- From Blue Hole to Low Reef can be considered as Artisanal fishing zone. This area is 9 miles long.
- White Water could also be closed for certain time to recover (No-entry zone).
- From 100 meters outside the reef could be used as Artisanal fishing zone.
- Fish pots should be forbidden. "There is a beautiful dive site called Stingray City which was full of ornamental fish, they were all killed lately by fish pots"(Bedda Vasquez).
- You should exact wires with bigger wholes for this fishing method to avoid catching the tiny fish (Santiago Posada).
- Divers think that spear gun fishing is more selective and thus less harmful than line fishing.
- They also think that seasons and weather must be considered because when Artisanal fishers can not go outside the reef for strong wind purposes they fish inside in a very aggressive way.

Observation: Felipe Cabeza did not attend the Divers zoning workshop but thinks that scuba dive sites should be identified on both sides of the islands because if only one side is considered when there is wind from such side they will necessarily need to go to the other, otherwise their work would be paralyzed until the wind is over.

h. Artisanal Fishers and Divers Zoning CosultationWorkshop Plenary. Held on May the 3d at Junin school in Town.

CONCLUSIONS

- No-take zones: White Water. Behind Santa Catalina (on the 100 fathom mark) to in front of Fresh Water Bay). Close to the barrier reef both inside and outside except down to the Southern part of it inside the reef which is considered as a general use zone. All around the island, specially where there is sea grass bed should be No-take also (a special distance was not agreed on).
- Scuba dive sites are marked with red ink (5 red flags on map).
- Artisanal fishing zones: outside the 100 fathom mark.
- Stakeholders did not agree on No-entry zones. Some of the think that it would be good to do them by seasons to protect species during spawning time. Others think that there are some natural No-entry zones on the barrier reef already.
- External boundaries: 11 miles out from any part of the barrier reef.
- External boundaries can be marked with buoys.
- Dive sites should be marked with flags.

Observation: Detailed zoning information can be observed on corresponding map.

COMMENTS

- Vicente Archbold thinks that certain areas will not recover. Elizabeth Taylor said that according to experience in other places this can happen (replenishment) if areas are closed from two to five years.
- Felipe Cabeza wanted to know what was better to protect, areas of abundance or those that are depleted?
- Captain Arenas wanted to know what would be considered for zoning, depth or distance? Elizabeth told him that stakeholders would decide that. “Maybe you do not have to decide on depth or distance but on conditions.”
- Captain Archbold denounced a case of young lobster fishing in Santa Catalina today precisely. Elizabeth said that definitively we have to work on educating community.
- Mr. Aristides Dawkins, traditional fisherman, said that divers should not go where artisanal fishers are fishing. Harvey Robinson replied saying that if

where artisanal fishers are fishing there is a good rock, he will go there diving to take out lobsters.