

# **RHYTHM OF THE SEA**

**COASTAL ENVIRONMENTAL PROFILE  
OF  
SAN VICENTE, PALAWAN**

**BY  
YASMIN D. ARQUIZA**

Coastal Resource Management Project  
*of the*  
Department of Environment and Natural Resources  
*supported by the*  
United States Agency for International Development

1999

**Rhythm of the Sea**

Coastal Environmental Profile of San Vicente, Palawan

Yasmin D. Arquiza

1999

PRINTED IN CEBU CITY, PHILIPPINES

**Citation:** Arquiza, Y.D. 1999. *Rhythm of the Sea: Coastal Environmental Profile of San Vicente, Palawan*. Coastal Resource Management Project, Cebu City, Philippines, 131 p.

This publication was made possible through support provided by the United States Agency for International Development (USAID) through Silliman University (Cooperative Agreement No. 492-0444-A-00-5110-00) and under the terms and conditions of Contract No. AID-492-0444-C-00-6028-00 supporting the Coastal Resource Management Project. The opinions expressed herein are those of the author and do not necessarily reflect the views of the USAID. This publication may be reproduced or quoted in other publications as long as proper reference is made to the source.

**Cover and illustrations:**

Ricardo Buenaflor, Jr.

**Photos:**

R. Buenaflor Jr. and Y.D. Arquiza

CRMP Document No. 3-CRM/1999

ISBN 971-91925-2-6

# CONTENTS

<b>Preface and Acknowledgments</b>	vii
<b>Foreword from the Municipal Mayor of San Vicente</b>	viii
<b>Acronyms</b>	ix
<b>Commonly-Used Local Terms</b>	x
<b>List of Terms</b>	xii
<b>Chapter 1</b>	
<b>Profile, Plan, Action! (<i>Introduction</i>)</b>	1
The PCRA Team	4
<b>Chapter 2</b>	
<b>All About Participatory Coastal Resource Assessment (<i>Some Explanatory Notes</i>)</b>	5
Resource Mapping	7
Group Interviews	9
Habitat Assessment	9
<b>Chapter 3</b>	
<b>Life In The Town (<i>Municipal History and Socio-economic Profile</i>)</b>	15
The Local Economy	16
Agriculture	19
Cottage Industries	20
Tourism	20
Basic Services	21
Education	21
Health	21
Welfare	22
Security	22
Transportation	22
Water	22
Electricity	23
Communication	23
Finance	23
<b>Chapter 4</b>	
<b>Village Life At A Glance (<i>Barangay Histories and Profiles</i>)</b>	25
Binga	26
New Canipo	27
Sto. Niño	28
Alimanguan	28

San Isidro	29
New Agutaya	30
Poblacion	31
New Villafria	31
Port Barton	33
Caruray	34
<b>Chapter 5</b>	
<b>Things You Can Find On The San Vicente Coastline (<i>Geography and Environmental Features</i>)</b>	59
Climate and Rainfall	61
Oceanography	62
<b>Chapter 6</b>	
<b>Treasures Under The Sea (And Along The Coast, Too) (<i>Coastal Habitats and Resources</i>)</b>	65
Reef Fish	69
Commercial Fishing Potential	69
Corals	70
Seagrass	71
Algae	73
Substrate	73
Mangroves	74
Plankton	74
PCRA Results	
<b>Chapter 7</b>	85
<b>Things People Do With Fishes And Beaches (<i>Coastal Resource Uses</i>)</b>	92
It's a Woman's World, Too	96
Tourism, Mining, etc.	
<b>Chapter 8</b>	99
<b>Who's In Charge? (<i>Legal and Institutional Framework</i>)</b>	
<b>Chapter 9</b>	107
<b>Fishers (And Scientists) Are Talking About ... (<i>Issues and Management Considerations</i>)</b>	
	117
<b>Chapter 10</b>	
<b>Now, What? (<i>Action Plans</i>)</b>	125
<b>References</b>	126
<b>List of Participants</b>	

# TABLES, FIGURES and BOX ITEMS

## Tables

3.1	Socio-economic data in coastal villages of San Vicente, PCRA 1997	18
5.1	Land and water use classification of San Vicente	60
5.2	Islands in San Vicente	61
5.3	Coliform levels in the waters of San Vicente	64
6.1	Most abundant families of fishes in San Vicente	68
6.2	Characteristics of coral reefs in San Vicente	70
6.3	Summary of benthic assessments (percentage of frequency cover) of four sites in Port Barton, 1998	72
6.4	Extent of seagrass and algae in San Vicente	72
6.5	Benthic substrate cover in San Vicente	73
6.6	Mangrove communities in San Vicente	75
6.7	Results of the habitat assessment in San Vicente, PCRA 1997	77
6.8	Assessment of coral reefs in San Vicente, PCRA 1997	78
7.1	Fishing households and ownership of gear in San Vicente, PCRA 1997	94
7.2	Role of women fishers in San Vicente, PCRA 1997	97
8.1	Ordinances pertaining to coastal management in San Vicente	102
9.1	Summary of coastal resource management issues in San Vicente, PCRA 1997	110
9.2	Management issues and their causes, Port Barton	112

## Figures

2.1	The Participatory Coastal Resource Assessment process	6
2.2	Habitats identified by the PCRA participants in San Vicente, 1997	7
2.3	Coastal resources identified by the PCRA participants in San Vicente, 1997	8
2.4	Basic format for transect diagrams	10
2.5	Basic format for trend and calendar maps	11
2.6	Simplified set of criteria for habitat assessment	12
2.7	Habitat assessment recorded on snorkeling slate	13
2.8	Substrate sheet showing approximate condition of the reef	13
3.1	Coastal habitats and political boundaries of San Vicente, Palawan	17
4.1	Coastal resource map of Sto. Niño	37
4.2	Coastal resource map of Binga	38
4.3	Coastal resource map of New Canipo	40
4.4	Coastal resource map of Alimanguan	42
4.5	Coastal resource map of Poblacion	44
4.6	Coastal resource map of Port Barton	46
4.7	Coastal resource map of Caruray	48
4.8	Coastal resource map of Boayan Island	50
4.9	Coastal resource map of San Isidro	52

4.10	Coastal resource map of New Agutaya	53
4.11	Coastal resource map of New Villafria	54
5.1	Calendar diagram for weather patterns in sitio Boding and Proper, barangay Binga, PCRA 1997	63
5.2	Calendar diagram for weather patterns in sitio Gawid, barangay Caruray, PCRA 1997	63
6.1	Sampling stations of the Silliman University study in San Vicente, 1996	66
6.2	Catch composition by fish families in San Vicente	67
6.3	Plankton distribution in San Vicente	74
6.4	Transect diagram of coastal resources in San Vicente classified according to habitat, PCRA 1997	79
7.1	Resource uses identified by San Vicente fishers during mapping sessions, PCRA 1997	87
7.2	Transect diagram of coastal resource uses in San Vicente according to habitat, PCRA 1997	88
7.3	Types of fishing gear used by San Vicente fishers	93
7.4	Seasonality of fishing gear, PCRA 1997	95
9.1	Major coastal resource management issues in San Vicente, PCRA 1997	109
9.2	Trend diagram for Sitio Old Site, Caruray	114
9.3	Trend diagram for Sitio Panindigan, Poblacion	114
9.4	Trend diagram for Sitio Sta. Cruz, Caruray	115
9.5	Trend diagram for Sitio Albaguen, Port Barton	115

### Boxes

4.1	Results of visitor survey in Port Barton	35
6.1	Results of a coral reef survey in Port Barton	71
8.1	Summary of the PCSD Guidelines for the coastal/marine component of the Environmentally Critical Areas Network (ECAN) for Palawan	103
8.2	Summary of PCSD Guidelines for tourism-oriented establishments in Palawan relevant to coastal zones	106
10.1	Initial Development Plan for San Vicente	120
10.2	Action Plan for 1998-2002, Port Barton	121

# PREFACE and ACKNOWLEDGMENTS

*Rhythm of the Sea* provides a baseline of information about the coastal environment of San Vicente, Palawan. This profile is intended to assist with management planning at the barangay and municipal government levels in San Vicente. It can also serve as a guide for other municipalities in Palawan.

Coastal resource management (CRM) cannot occur without informed participants and stakeholders in the process. Also, CRM cannot proceed without knowledge and valid data on the condition and status of the resources to be managed. This profile provides both a baseline on the environment as well as the people and their economy. Because people are the entry point for CRM, people, their activities and their problems are a focus of this profile.

*Rhythm of the Sea* is produced as part of the Coastal Resource Management Project's activities in San Vicente, Palawan. The project aims to develop and encourage leaders among local communities, non-governmental organizations, and government units to work for CRM. It is jointly implemented by the Department of Environment and Natural Resources with the Department of Agriculture-Bureau of Fisheries and Aquatic Resources, local government units, non-governmental organizations and other assisting agencies. Technical and administrative support is provided by Tetra Tech Environmental Management, Inc.

A few individuals were instrumental in the production of this book, in addition to all the local community and government participants mentioned in Chapter One. Overall technical editing was done by Alan White and Asuncion Sia. Editorial comments were provided by Benjamin Francisco, Tom Bayer and Sandra Zicus. The coordination efforts of Mel Corkum in Palawan; the comments and support of former Mayor Antonio Alvarez as well as other municipal officials, the editing of Evangeline Micalat and the layout and word processing work of Leslie Tinapay of Coastal Resource Management Project were all essential contributions.

## FOREWORD from the MAYOR

Many Filipinos share the traditional view that local government officials are in office to see to their every need, from womb to tomb. Indeed, in my early days in politics, I, too, had the notion that it was my job to provide the people of San Vicente everything they needed, and that was literally what I did, or at least tried to do. It took three years and thousands of requests for financial and commodity assistance before it dawned on me that I needed a different approach to address people's problems.

During my second term as mayor, I heard about a project in Central Visayas that had the community actively managing, protecting and guarding their natural resources. In realizing that this could spell the difference in the sustainability of their resource use and livelihood, I sought more information.

Impressed, I set about replicating this project in San Vicente. It was not easy. Most politicians still subscribed to the outdated notion that resource development projects were "high risk, low impact projects", generating few photo opportunities or "monuments" that would stand testimony to their efforts to get re-elected. Also, the few who controlled the resources in the municipality objected to the empowerment of community members who would someday be potential leaders conversant about their rights and able to protect these rights. Moreover, many among the community members themselves viewed government projects as doleouts and would rather be given farm inputs or fishing gear than taught sustainable coastal resource management practices.

Fortunately, the people who gave the project a chance were greater in number and strong in their resolve to try something new. It is to these people's credit that the Strategic Environmental Plan-San Vicente, Palawan, adopting the successful strategies of the Central Visayas project, was implemented in our municipality. Realizing their inherent role as managers of their natural resources, these people — upland and small rainfed lowland farmers, forest dwellers and fisherfolk — worked to enhance the integrity of the environment. Today, they are involved in the planning, implementation and monitoring of resource management activities in their areas.

When the Coastal Resource Management Project came to San Vicente, it found a municipality with a people steeped in participatory processes and evolving towards self-reliant fishing and farming communities, and taking part in making decisions regarding resource use and the implementation of these decisions. The Project took the right track when it started project activities with the participatory coastal resource assessment. For a community jealous of its new-found role, involvement in the fundamental step towards determining its future directions is vital. Ms. Yasmin Arquiza presents to us in this book the results of this important collaboration between the Coastal Resource Management Project and the people of San Vicente.

(Sgd) Antonio C. Alvarez  
Former Municipal Mayor



# ACRONYMS

ADA	agricultural development area
BMC	barangay management council
CENRO	Community Environment and Natural Resources Office
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CORIAL	Coastal, Ocean, Reef and Island Advisors Ltd.
CRM	coastal resource management
CRMP	Coastal Resource Management Project
DA-BFAR	Department of Agriculture-Bureau of Fisheries and Aquatic Resources
DENR	Department of Environment and Natural Resources
ECAN	Environmentally Critical Areas Network
ECC	environmental compliance certificate
EIS	environmental impact statement
GPS	global positioning system
IEE	initial environmental examination
IMA	International Marinelife Alliance-Philippines
IUCN	International Union for the Conservation of Nature
LGU	local government unit
LTC	Lanas, Tago-tago, Capitol (sitios in San Isidro, San Vicente)
MPN	most probable number
NGO	non-governmental organization
NIPAS	National Integrated Protected Areas System
PALECO	Palawan Electric Cooperative
PCRA	participatory coastal resource assessment
PCSD	Palawan Council for Sustainable Development
PCSDS	Palawan Council for Sustainable Development Staff
SEP	Strategic Environmental Plan
SEP-SVP	Strategic Environmental Plan-San Vicente, Palawan
SPIADP	Second Palawan Integrated Area Development Project
SUML	Silliman University Marine Laboratory
TAO	Technical Assistance Office
TDA	tourism development area
TDC	Tugdunen, Dapi, Coroan (sitios in Port Barton, San Vicente)
URTI	upper respiratory tract infection
USAID	United States Agency for International Development

# COMMONLY USED LOCAL TERMS

## Local Terms (General)

*amihan*  
*antipara*  
*baha mula sa umaapaw na ilog*  
*bahura*  
*bakawan*  
*banlik*  
*baybayin*  
*binabaha kung minsan, kulay putik*  
*ang tubig at ilalim*  
*buhay na bahura*  
*buhay na lusay*  
*bukana*  
*busero*  
*dagat*  
*daplak*  
*dinagko nga pangisda*  
*gasangan, bahura*  
*ginagawang palaisdaan*  
*habagat*  
*hibasan*  
*hindi maganda, sira*  
*hindi malapad*  
*hindi nagalaw*  
*hunasan*  
*ilegal na pag-angkin ng nipa*  
*isdang gagmay*  
*kakulangan sa gamit*  
*(walang kapalit sa nasirang arong)*  
*kalagayan*  
*kanal*  
*katamtaman*  
*katunggan*  
*kulang sa tubig na malinis*  
*kulay putik na talaga*  
*lapus-lapus*  
*lupa*  
*lusay, lusayan*  
*mababang bilihan ng lupa*  
*maganda*

## English Translation

northeast monsoon  
 goggles  
 floods from overflowing river  
 coral reef  
 mangrove  
 silt  
 beach  
 seasonal sedimentation, heavy sediment load in  
 the water column and at the bottom  
 live coral  
 live seagrass  
 estuary  
 compressor-aided diver  
 marine zone  
 north wind  
 commercial fishing  
 coral reef  
 converted to fishpond  
 southwest monsoon  
 reef flats  
 low quality/poor condition  
 not wide  
 undisturbed  
 reef flats  
 illegal claims on nipa stand  
 small fish  
 lack of equipment (no replacement for destroyed  
 fish aggregating device)  
 condition  
 passes, channels  
 moderate  
 mud flats  
 lack of clean/potable water  
 permanent sedimentation of bottom  
 blowhole, hole in the rocks  
 terrestrial zone  
 seagrass  
 low prices for land  
 good

<i>makasaysayang lugar</i>	historical place
<i>malapad</i>	wide
<i>maraming pagbabago</i>	many changes
<i>masyadong mahigpit na batas</i>	overly strict laws
<i>may burak na nakalutang sa tubig</i>	suspended sediments
<i>may dumi</i>	some pollution, erosion
<i>mga dayo na mangingisda</i>	fishers from outside
<i>minahan</i>	mining area
<i>naagnas na baybayin</i>	beach erosion
<i>nakakasirang paraan ng pangingsda</i>	destructive fishing
<i>natumbang kahoy</i>	fallen trees
<i>ninanakaw ang isda at sinisira ang arong/payaw</i>	fish are stolen/fish aggregating device are vandalized
<i>pagguho ng lupa</i>	landslide
<i>pagkawasak sa puy-anan sa yaman-dagat</i>	habitat destruction
<i>pagputol sa bakawan</i>	mangrove cutting
<i>pagtukod ug fishpond</i>	conversion to fishpond
<i>pamayanan, puy-anan</i>	settlement
<i>pangko</i>	indigenous sailboat
<i>pantalan</i>	port
<i>panyapak, frogman (slang)</i>	fins
<i>parke</i>	park
<i>pasyalan</i>	recreational area
<i>pinakamaganda</i>	excellent
<i>pinuputol para panggatong, pagpapatayo ng bahay</i>	cutting for firewood, poles
<i>pinutol ang mga kahoy</i>	cut trees
<i>polusyon</i>	pollution
<i>problema sa samahan (wala pa, hindi aktibo, hindi nagkakaisa)</i>	problem in organization (not organized, not active, no unity)
<i>putik</i>	siltation, soil erosion
<i>puy-anan</i>	house
<i>rawis</i>	fringing reef
<i>salatan</i>	south wind
<i>santwaryo</i>	sanctuary
<i>sari-sari store</i>	variety store/general merchandising store
<i>sirang tulay</i>	bridges in state of disrepair
<i>sobrang dumi</i>	heavy pollution
<i>sobra-sobrang pangingsda</i>	overfishing
<i>subasko</i>	squall
<i>tandol, punta</i>	point
<i>torotot</i>	snorkel
<i>walang burak</i>	no sediment
<i>walang buyer ng isda</i>	no buyers of fish catch
<i>walang health center/kulang sa gamot</i>	no health center, lack of medicines
<i>walang ibang kabuhayan sa taghirap na mga buwan</i>	no alternative livelihood during lean months
<i>walang kalsada</i>	no roads
<i>walang kasiguruhan sa tirahan</i>	no security of land tenure
<i>walang paaralan para sa mga bata</i>	no school
<i>walang pagpuputol na nagaganap</i>	no cutting

# LIST OF TERMS

## RESOURCES

### FISH

#### Local

*anay-anay or abay-abay*  
*agahon*  
*alumahan*  
*asohos/asu-os/aso-os*  
*bakoko*  
*balo*  
*banak*  
*bangsi*  
*bangus (semilya)*  
*bisugo*  
*burao*  
*dalagang-bukid*  
*danggit*  
*dapa*  
*darag-darag*  
*dilis*  
*espada*  
*galunggong*  
*hasa-hasa*  
*haol-haol*  
*hilo*  
*kabayo-kabayo*  
*kalapato*  
*kalaso*  
 emperor bream  
*katambak*  
*lapu-lapu*  
*liwit*  
*mamsa*  
*mangagat*  
*matambaka*  
*maya-maya*  
*mulmol*  
*pak-an*  
*palata*  
*pagi*  
*pating*  
*rompe*  
*sagisi*  
*salayginto*  
*salay-salay*  
*salmollete*  
*sapsap*  
*sulid*  
*suno*

#### Local

#### Common English

giant basslet  
 red snapper  
 mackerel  
 whiting  
 sweetlip  
 needlefish  
 mullet  
 flying fish  
 milkfish fry  
 threadfin bream  
 mackerel, tuna  
 fusilier  
 rabbitfish  
 sole  
 gray snapper  
 anchovy  
 cutlassfish  
 scad  
 mackerel  
 sardine  
 eel  
 seahorse  
 hunchback trevally  
 lizardfish *kanuping*  
*karaho* lizardfish  
 emperor bream  
 grouper  
 hairtail  
 jack  
 snapper  
 big-eyed scad  
 snapper  
 parrotfish  
 hard-tailed scad  
 damselfish  
 stingray  
 shark  
 barracuda  
 threadfin bream  
 yellow-striped crevalle  
 crevalle, trevally  
 goatfish  
 slipmouth  
 fusilier  
 grouper

#### Common English

*talakitok*  
*tambakol*  
*tamban*  
*tangigue*  
*torsillo*  
*tulingan*

jack  
 yellow-fin tuna  
 sardine  
 spanish mackerel  
 seapike  
 frigate tuna

### SHELLS

#### Local

*bagasay*  
*balingsara*  
*budyong*  
*bulatok*  
*halaan*  
*kapinane*  
*kaykay*  
*kibaw*  
*lapas*  
*liswi*  
*lumban*  
*payong-payong*  
*punaw*  
*sa-ang*  
*sagisi*  
*samong*  
*sanang*  
*saroksarok*  
*sihi*  
*sikad-sikad*  
*sisi*  
*suso*  
*tagitis*  
*tahong*  
*taklobo*  
*taktakon*  
*takurog*  
*talaba*  
*tanakogon*  
*tarab*  
*tipay*

#### Common English

n.t.  
 n.t.  
 helmet shell  
 n.t.  
 venus shell  
 abalone  
 n.t.  
 n.t.  
 abalone  
 cone shell  
 cowry  
 turban shell  
 venus shell  
 spider shell/conch  
 n.t.  
 top shell  
 n.t.  
 n.t.  
 top shell  
 n.t.  
 oyster  
 snail  
 n.t.  
 mussel  
 giant clam  
 dolphin shell  
 n.t.  
 oyster  
 n.t.  
 pen shell  
 ark shell

### OTHER INVERTEBRATES

#### Local

*agokoy*  
*alamang*  
*alimango*  
*alimasag*

#### Common English

fiddler crab  
 sergestid shrimp  
 mud/mangrove crab  
 blue crab

<i>balatan</i>	sea cucumber
<i>banagan</i>	spiny rock lobster <i>hipon</i>
penaeid shrimp	
<i>lambay</i>	blue crab
<i>pitik</i>	combfish
<i>pugita</i>	octopus
squid	
<i>pusit bahura</i>	reef squid
<i>sugpo</i>	penaeid shrimp
<i>tamilok</i>	mangrove worm/ship borer
<i>tauban</i>	cuttlefish

*pusit*

<i>bondak-bondak</i>	hook and line
<i>bubo sa alimango</i>	crab trap
<i>bubo</i>	fish trap
<i>ganti-ganti</i>	squid jigger
<i>hipon-hipon/orang-orang</i>	jigger
<i>kitang</i>	bottomset longline
<i>kitang-pamating</i>	longline for shark
<i>kurantay</i>	encircling gill net for herring
<i>lambat pang-danggit</i>	net for rabbitfish
<i>lambat sa semilya</i>	net for milkfish fry
<i>ng bangus</i>	

## MARINE MAMMALS, SEABIRDS & REPTILES

### Local

*ahas dagat*  
*ambuhutan*  
*buwaya*  
*dugong*  
*ibon dagat*  
*kanaway*  
*lawin*  
*lumba-lumba*  
*pawikan*  
*talabong*  
*wild duck*

### Common English

sea snake  
 whale  
 crocodile  
 dugong  
 seabird  
 seagull  
 eagle  
 dolphin  
 sea turtle  
 heron  
 wild duck

## PLANTS

### Local

*bakhaw*  
*baryaw-baryaw*  
*guso*  
*kahoy*  
*lato*  
*lumot*  
*nipa*  
*samo*  
*uway*

### Common English

mangrove  
 seagrass  
 seaweed  
 wood  
 seaweed  
 moss  
 nypa  
 n.t.  
 rattan

## OTHERS

### Local

*bato*  
*buhangin*  
*silica*

### Common English

stones, pebbles  
 sand  
 silica sand

## USES

## FISHING GEAR & PRACTICES

### Local

*baklad*  
*baling*  
*bitana*

### Common English

fish corral  
 beach seine  
 beach seine

*lambat-alimasag*  
*lambat-palutaw*  
*lambat-pamating*  
*lambat-pamusit*  
*lambat-panolid*  
*paanod*  
*pamalo*  
*pamana*  
*pamana sa pusit bahura*  
*pamana sa tauban*  
*pamo*  
*pangawil*  
*pangugita*  
*pantihan/lambat-palubog*  
*rabnot*  
*sikad-sikad*

*subid*  
*talakop*  
*timing*

crab gill net  
 surface gill net  
 gill net for shark  
 net for squid  
 net for fusilier  
 drift gill net  
 net for needlefish  
 spear  
 spearfishing for reef squid  
 spearfishing for cuttlefish  
 drift gill net  
 hook and line  
 jigger  
 bottom set gill net  
 reef seine  
 net for schools of fish  
 nearshore  
 longline  
 ring net  
 hook and line for threadfin  
 bream

