ABSTRACT

THE POLITICAL ECOLOGY OF ENVIRONMENTAL CHANGE AND TOURIST DEVELOPMENT IN COZUMEL, MEXICO

By Carl Johann Nim IV

Tourist development on Mexico's Yucatan peninsula has transformed secluded jungle into the "Maya Riviera", a mass tourist destination encompassing Cancun, Playa del Carmen, and the island of Cozumel. Cozumel's economy is dependent on tourism and it is impacting its reefs, the island's most spectacular natural resources. The shift from dive tourism to cruise tourism has increased visitation to this small island exponentially. Interviews conducted suggest anthropogenic, terrestrial and aquatic factors at varying scales are problematic side-effects to the unrestricted and unregulated growth that has occurred on Cozumel since the 1960's. Furthermore, regulatory neglect and questionable development practices between politicians and private contractors have undermined many efforts for preserving the natural beauty of the island's environment. By utilizing the approach of political ecology, along with interviews and remotely sensed images, this thesis examines the observations of Cozumeleños and foreign citizens regarding tourist development on Cozumel.
THE POLITICAL ECOLOGY OF ENVIRONMENTAL CHANGE AND
TOURIST DEVELOPMENT IN COZUMEL, MEXICO

A Thesis

Submitted to the
Faculty of Miami University
In partial fulfillment of the
Requirements for the degree of
Master in Geography
Department of Geography

By
Carl Johann Nim IV
Miami University
Oxford, Ohio
2006

Advisor:____________________________
Dr. Stanley Toops

Reader:____________________________
Dr. Thomas Klak

Reader:____________________________
Dr. Bruce D’Arcus
# TABLE OF CONTENTS

Abstract: ............................................................................................................................................................ i
Table of Contents: .................................................................................................................................................. ii
List of Figures: ................................................................................................................................................. v
List of Tables: ................................................................................................................................................... vii
Acknowledgments: ........................................................................................................................................ viii

Chapter 1: A Geographic Glimpse of Cozumel .......................................................... 1
  Introduction to the Tourist Economy in Mexico and Cozumel ..................... 1
  Research Questions ................................................................................................................... 2
  The Declining Health of the World’s Reefs .................................................... 3
  Mexico’s and Cozumel’s Reefs ........................................................................ 4
  A Brief History and Geography of Cozumel ................................................... 6
  Thesis Outline ........................................................................................................ 10

Chapter 2: Ecotourism, Political Ecology and Geography ....................................... 11
  Introduction ........................................................................................................................... 11
  Ecotourism .......................................................................................................................... 12
    The Rise of Ecotourism ................................................................................................. 13
    Central Features of Ecotourism ....................................................................................... 14
    Ecotourism and the Rise of Sustainability ..................................................................... 16
    Ecotourism Today ........................................................................................................... 16
  Marine Ecotourism ............................................................................................................ 18
    Marine Ecotourism’s Benefits ......................................................................................... 19
    Marine Ecotourism’s Disadvantages .............................................................................. 19
  Political Ecology .............................................................................................................. 20
    The Rise of Political Ecology .......................................................................................... 21
  Conceptual Arenas in Political Ecology .......................................................................... 22
    Third World Political Ecologies ...................................................................................... 22
    Marxist Political Ecology ................................................................................................. 23
    Poststructuralist Political Ecology ................................................................................. 24
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 3</td>
<td>Mixed Methods: Qualitative Interviews and Remote Sensing</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Mixed Method Case Studies</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Interviews</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Semi-Structured Interviews</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Unstructured Interviews</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Creative Interviewing and Oral Environmental Histories</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Positionality</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Interviewee Demographics</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>The Interview Process</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Remote Sensing</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Image Acquisition</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Visual Interpretation</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Image Pre-Processing</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Land Cover and Land Cover Change Classification</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Closing Comments</td>
<td>48</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Observations of Cozumel’s Terrestrial Environment</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Overview of the Political Ecology of Cozumel</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>The Socioeconomic Stratification of San Miguel</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Interviewee Concerns of San Miguel’s Urban Environment</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>66</td>
</tr>
</tbody>
</table>
Chapter 5: Observations of Cozumel's Coastal and Aquatic Environment ........... 68
Introduction ........................................................................................................ 68
Mexico’s Marine Protected Areas: Contentious Conservation Areas .......... 68
Testing the Integrity of Tourist Development: The Cozumel Pier Case ....... 72
Cozumel’s National Marine Park: Between a Pier and a Hard Place ......... 79
Marine Park Management Concerns ............................................................... 80
Marine Park Ecological Concerns ................................................................. 84
Coastal Development in Cozumel ................................................................. 87
Port and Cruise Ship Operation near the Marine Park.............................. 93
The Cozumel Pier Case…Revisited? Plans for a Post-Wilma Cruise Pier ... 97
Conclusion........................................................................................................ 98

Chapter 6: Cozumel: At the Crossroads of Tourist Development............... 100
Introduction .................................................................................................... 100
Common Threads of Development............................................................... 101
Cozumel’s Concerns .................................................................................... 105
Answers to Research Questions................................................................. 107
Cozumel’s Future ......................................................................................... 109
Utility of this Study...................................................................................... 111

Literature Cited............................................................................................... 113
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1: Map of Mexico’s reef areas and protected areas</td>
<td>4</td>
</tr>
<tr>
<td>1.2: Mexican reef facts</td>
<td>5</td>
</tr>
<tr>
<td>1.3: Mesoamerican Barrier Reef System</td>
<td>6</td>
</tr>
<tr>
<td>1.4: Map of Cozumel</td>
<td>7</td>
</tr>
<tr>
<td>3.1: 1988 Landsat TM natural color composite of Cozumel</td>
<td>44</td>
</tr>
<tr>
<td>3.2: 2001 Landsat ETM natural color composite of Cozumel</td>
<td>45</td>
</tr>
<tr>
<td>3.3: 2001 Landsat ETM False color composite of Cozumel</td>
<td>46</td>
</tr>
<tr>
<td>4.1: Cruise Ship Arrivals to Cozumel</td>
<td>51</td>
</tr>
<tr>
<td>4.2: 1988 Landsat TM natural color composite of San Miguel</td>
<td>52</td>
</tr>
<tr>
<td>4.3: 2001 Landsat ETM natural color composite of San Miguel</td>
<td>52</td>
</tr>
<tr>
<td>4.4: Downtown San Miguel and Cruise Ship Piers</td>
<td>54</td>
</tr>
<tr>
<td>4.5: Downtown San Miguel</td>
<td>56</td>
</tr>
<tr>
<td>4.6: Stores along San Miguel’s waterfront</td>
<td>57</td>
</tr>
<tr>
<td>4.7: Punta Langosta Mall</td>
<td>59</td>
</tr>
<tr>
<td>4.8: Vacant lot with disposed building materials</td>
<td>61</td>
</tr>
<tr>
<td>4.9: Abandoned lot with rebar structural posts exposed</td>
<td>61</td>
</tr>
<tr>
<td>4.10: Trash pile alongside a road</td>
<td>62</td>
</tr>
<tr>
<td>5.1: Environmental Land Ordinance</td>
<td>70</td>
</tr>
<tr>
<td>5.2: Cozumel’s National Marine Park</td>
<td>73</td>
</tr>
<tr>
<td>5.3: Proposed Puerta Maya Construction Zone</td>
<td>76</td>
</tr>
<tr>
<td>5.4: Paraiso Reef and the International Pier prior to the construction of Puerta Maya</td>
<td>76</td>
</tr>
<tr>
<td>5.5: Reefs of Cozumel National Park</td>
<td>80</td>
</tr>
<tr>
<td>5.6: Aquatic species sought after for world fish market</td>
<td>86</td>
</tr>
<tr>
<td>5.7: 1988 Land Cover Map</td>
<td>88</td>
</tr>
<tr>
<td>5.8: 2001 Land Cover Map</td>
<td>89</td>
</tr>
<tr>
<td>5.9: Hotel construction site with a pile of concrete adjacent to the coastline</td>
<td>90</td>
</tr>
</tbody>
</table>
5.10: Coastal development south of San Miguel and Chankanaab

Marine National Park ................................................................. 92

5.11: Brochure of Chankanaab Marine National Park Dolphin Enclosures .... 93

5.12: Inspiration with tender alongside prior to being broadsided by

the squall ...................................................................................... 95

5.13: Inspiration attempting not to broadsided the Grand Princess ............. 95

5.14: Cruise Ship Inspiration Incident .............................................. 96

5.15: Proposed Puerta Maya Extension .............................................. 97
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1: Interviewee Demographics</td>
<td>37</td>
</tr>
<tr>
<td>3.2: Interviewee Positionality Code Identifiers</td>
<td>40</td>
</tr>
<tr>
<td>3.3: Spatial and Spectral Resolution for Landsat TM and ETM+ Sensors</td>
<td>42</td>
</tr>
</tbody>
</table>
I could have never predicted the fortuitous events that were about to unfold for me when I came to Miami University. While I would like to say it has all been wise judgment on my part, nothing could be farther from the truth. In all actuality, the incredible amount of help from others, in addition to a healthy dose of luck, are integral to the achievements I have made. It is in this section, in my mind the most important section that I would like to express my sincerest gratitude to those individuals who have made this dream a reality for me.

Beginning chronologically, I would like to thank William Renwick for coming to Indiana University of Pennsylvania to discuss the graduate program at Miami. Ever since that initial meeting, Bill has been an inexhaustible source of encouragement, good advice, and constructive critique throughout my time at Miami. Furthermore, Bill has put faith in my abilities and enabled me to pursue opportunities I had not thought possible. For that I am incredibly grateful.

Next I would like to thank my supportive committee, and especially my advisor, Dr. Stanley Toops. With just the right amounts of persuasiveness and advice Stan has managed to guide my swirling thought process, keep me on task, and be flexible with my fast-paced personal life. These are no small tasks, I can assure you, but the most important thing that I value about having Stan as an advisor are the parallels he shares with my father. Parallels such as being patient, making witty jokes and laughing about otherwise adverse conditions has shown me, like my father has, that nothing should be taken too seriously. Thanks for reminding me of that while I have been far from home Stan. Next I would like to thank Tom Klak. Tom has graced me with more knowledge about the Caribbean than I could get from any textbook, including his own! The conversations and experiences that I have had with Tom in the department, classrooms and especially Dominica have left an indelible impression on me. Tom has been an invaluable committee member and influential mentor. For writing assistance, aiding in making my arguments clear and instilling the power of literary persuasiveness in me, I would like to thank Bruce D’Arcus. By taking the time to explain ways to make my writing more effective and by giving me the freedom to pursue
personalized topics of interest this thesis is all the better as a result of your input and advice Bruce, thanks.

In regard to remote sensing technical support, I would like to thank John Maingi and Mary Henry for providing me with a wealth of knowledge and guiding me in my analysis. Without the two of you this thesis would have never had the beautiful maps that it does. Next, I would like to thank the Department of Geography and the Department of Zoology for funding. I would also like to thank all the interviewees who participated in this study, your voices are the substance and essence of this project. I would also like to thank Cozumel’s Marine Park employees for all of their assistance and for giving me the opportunity to see how a marine park operates.

Last, but certainly not least, I would like to extend my most heartfelt thanks to my wife, Molly. Thank you for being my research assistant, my ecological advisor, my friend and for assisting with our most wonderful creation to date, our son Johann, to which this thesis is dedicated. Your unswerving patience, thoughtful advice and companionship have enriched my life in ways that I will never be able to convey. You have given me everything in my life that I can be thankful for and I will never forget that my resplendent amalgam.
Chapter 1

A GEOGRAPHIC GLIMPSE OF COZUMEL

“You must be either very dumb or very rich if you fail to notice,” notes Mexican activist Esteva (1992: 7) “that development stinks.”

Peet and Watts (1996: 26)

Introduction to the Tourist Economy in Mexico and Cozumel

The tourist industry in Mexico is a fundamental contributor to the national economy. As Clancy (1999) points out, the tourist industry is the second largest employer, next to agriculture, and consistently ranks as either the second or third largest export. Various Mexican state-sponsored programs have been utilized to develop tourism “growth poles” throughout the country. These tourist destinations strive to bring economic development and jobs to lesser developed areas thereby facilitating the spread of economic integration throughout the Republic. The proposed benefit, increased state and local revenues, of this state-sponsored tourist development has been questioned, however, by Brenner and Aguilar (2002) who note that overall tourism accounts for less than 5% of Mexico’s gross domestic product (GDP). Brenner and Aguilar (2002), along with other critics (Clancy 1999), mention how within “growth pole” locations workers are dependent upon low wage service jobs and the tourist economy. Other findings include a lack of adequate social services that the funds for tourism have been able to provide local communities and deplorable environmental conditions that have arisen due to development practices that have neglected the natural environment in both the planning and construction phases.

Cozumel is by no means a “growth pole” location; however, Cozumel’s geographic site and situation makes the island ideal for dive tourism. Submerged coral reefs off the shore of Cozumel facilitate one of the island’s most lucrative tourist businesses, dive charters. Unlike the larger growth pole locations within Mexico, such as Cancun, Cozumel began as a small, independent tourist destination nearly a decade prior to the other planned locations. Despite the differing timeline of tourist development and the independent way Cozumel developed its tourism market, which contrasts significantly with growth pole locations, the societal and environmental problems associated with Cozumel’s tourist
development have not differed drastically from growth pole locations. The overwhelming economic disparity between tourist spaces and neighborhoods in growth pole locations coupled with a lack of basic utilities are just a few of the societal complications Cozumel has incurred in its pursuit of tourist development. In addition to these societal concerns, ecological concerns abound, such as preserving natural ecosystems, maintaining fresh water supplies, waste water treatment, and garbage disposal.

Therefore, the first objective of this thesis is to chart the transformation of Cozumel from a low impact ecotourist location in the 1970s to the mass tourism Cruiseship location that it is today. Secondly, as a case study, this thesis will examine the implications of tourist development on Cozumel’s natural environment and the socio-environmental observations of Cozumeléños and foreign citizens. Finally, the thesis argues that advocates for environmental protection are ill-equipped to defend themselves against the interests of the state, transnational firms and developers when utilizing multinational means of dispute reconciliation in the realm of environmental violation litigation. Combined, these arguments portray a political ecology mosaic of human-environment interactions laden with contention and conflict, which ultimately acts as an example of the problems surrounding tourist development in coastal areas.

**Research Questions**

Given the aforementioned problems associated with tourist development in Mexico and Cozumel, my overarching research question in regard to tourist development on Cozumel is:

*How have public and private efforts to enhance tourist development affected stakeholders’ observations of nature on Cozumel?*

I will answer this question by using the following questions:

1) What are the public and private policies which have initiated the change in Cozumel’s coastal areas and what are the contentions that have resulted from it?

2) How do stakeholders, specifically dive tourists, dive masters, expatriates, activists, and governmental employees; perceive tourist development on Cozumel and how do these various stakeholders perceive the recent increase in development on the island?
3) How has tourist development changed the physical landscape of Cozumel?

4) Are the stakeholders’ observations of environmental change consistent with the physical changes in the landscape?

These questions are important because they will allow me to determine how tourist development has affected observations of Cozumel’s environment and whether or not stakeholder’s observations are legitimated through land-cover change as illuminated by remote sensing. This is important because adverse observations have the potential to foster negative tourist connotations with the island, which could undermine both the sustainable development and tourist development that the government is seeking to achieve.

**The Declining Health of the World’s Reefs**

The declining health of coral reefs throughout the world is a significant environmental threat to coastal ecosystems. Events such as the “International Year of the Coral Reef” in 1997 and the “International Year of the Ocean” in 1998, illustrate a global concern for the health of these ecosystems. Many countries have acknowledged the importance of coral reefs and have conducted studies regarding the various external contributors that have a direct impact on the declining health of the world’s reefs. One such study conducted by the National Oceanic and Atmospheric Administration (NOAA) in the maritime states and territories of the United States raised significant concerns for coral reefs under American management in 2002 (Turgeon et al. 2002). One of the most alarming studies, conducted by the Australian Institute of Marine Studies in 1994, noted that “as much as 70 percent of the world’s reefs may be destroyed in the next 20 to 40 years if the current rate of destruction continues” (Colwell 1996).

Coral reefs are often referred to as underwater rainforests due to the role that they play in the carbon cycle and the biodiversity that they foster (Potter et al. 2004, Goodbody and Thomas-Hope 2002). However, coral reefs also have numerous external factors that contribute to the demise of the ecological services that coral reefs provide. The primary factors known to contribute to the declining health of coral reefs consist of global climate change and coral bleaching, fishing, diseases, tropical storms, coastal development and runoff, coastal pollution, harvesting and trade in corals and live reef species, alien species,

**Mexico’s and Cozumel’s Reefs**

Mexico’s coral reefs are scattered along the republic’s coastline. They are located in four main regions, the Gulf of California and Pacific Coast, western Bahía de Campeche between Tampico and Veracruz, the Campeche Bank, and the fringing reefs of the Caribbean Sea, which can be seen in figure 1.1 (Spalding et al 2001).

![Figure 1.1: Map of Mexico’s reef areas and protected areas. (Source: Spalding et al 2001)](image)

Also shown in figure 1.2 is a list of reef facts from the World Atlas of Coral Reefs. The largest reef structures in Mexico are located off the coast of the state of Quintana Roo. Besides Quintana Roo’s contribution to the total area of coral in Mexico, the Yucatan current off the eastern coast of Quintana Roo plays a vital role in the dispersal of coral larvae in the region (Spalding et al. 2001: 114). Cozumel’s reefs are part of the world’s second largest reef network, the Mesoamerican Barrier Reef (See figure 1.3). The importance of the
Yucatan current’s dispersal of coral larvae to other reefs in the area poses significant concerns not only for Cozumel’s environment, and therefore its tourist industry, but also for surrounding habitats.

Cozumel has coral reefs on both the windward and leeward sides of the island; however, a majority of the islands reefs are along the leeward side, which can be seen in figure 1.4 by noting the distribution of dive flags on the map. Cozumel, arguably, has some of the most beautiful coral formations in the world. Dive sites such as Palancar Gardens, Santa Rosa Wall, and Palancar Caves are known throughout the world as top notch dive sites. Despite the underwater beauty of Cozumel’s reefs, they have several potential threats.

Increased tourist development on Cozumel has brought a series of environmental concerns with it. Due to the various factors that impact the health of the island’s coral reefs, it is nearly impossible to pinpoint one particular cause of the decline of these ecosystems. In this study, I will look at specific environmental issues and problems that have occurred on Cozumel and evaluate the impacts that these events have had on Cozumelanos observations of the environment. With the understanding that most of Cozumel’s reefs are relatively near
the coast, this study will address both terrestrial and coastal environmental concerns. This is necessary when considering the ties that bind Cozumel’s terrestrial and coastal ecosystems.

![Figure 1.3: Mesoamerican Barrier Reef System](http://www.mbrs.org.bz/english/map_of_project_area.htm)

A Brief History and Geography of Cozumel

The island of Cozumel or “Ah-Cuzamil-Peten (Island of Swallows)” as it is known to the Maya, lies off the east coast of the Yucatan Peninsula in the Mexican state of Quintana Roo (Greensfelder et.al. 2001). Originally a pilgrimage site for mainland Maya, the island has a long reputation as a small fishing locale that has historically fluctuated in periods of economic prosperity. The inhabitant population of Cozumel is roughly 70,000, which is periodically increased by the thousands for several hours a day when cruise ship tourists disembark. A relatively small island, Cozumel is roughly 30 miles long and 10 miles wide (see figure 1.4). Similar in geography to the Yucatan Peninsula mainland, the island’s geology consists primarily of porous limestone with subsurface freshwater rivers and cenotes.
(freshwater filled sinkholes), which make for a relatively rocky coastline on the leeward side of the island. On the windward side of the island, however, there are sandy beaches but the currents are swift and strong so swimming can be hazardous. Therefore a majority of the island’s aquatic activities take place on the leeward side of the island. Cozumel has very little physical relief and a majority of the island’s interior is covered in a lush cover of tropical semi-deciduous forest and low tropical deciduous forest. The periphery of the island is dominated by coastal vegetation while Cozumel's lagoons, swamps and mangrove forests are predominantly located on the southern and northern ends of the island with small patches on the eastern side of the island (Cuarón et al. 2004).

The island is connected to the mainland by a ferry departing from the island’s primary city San Miguel, to Playa del Carmen. In addition to the ferry, the island hosts an international airport near San Miguel. Within recent decades this accessibility, along with the
proximity of the coral reefs and Mayan ruins, has made the island an enticing locale for
tourism. Cozumel’s boom in tourism began in 1961 when Jacques Cousteau filmed a
documentary on the beauty of Cozumel’s reefs. Thereafter, dive tourists began visiting the
island in large numbers (Greensfelder et. al. 2001).

A genuine interest in Cozumelinos “amabilidad”, or kindness, in conjunction with the
ecotourist diver’s interest and concern for the natural beauty of the reefs made Cozumel a
perfect dive locale. Later, in the 1980s, the Mexican government and developers (Consorcio
H, and Carnival Cruise Lines respectively) began to propose building cruise ship piers on the
island to increase tourism revenues. Despite planner’s recommendations for an alternative
area of construction and disapproval from the local population in a referendum which stated
that 60% of the voters disagreed with the location of the construction, construction
continued (Preston 1996). Despite opposition from Cozumelinos, construction firms
decided to “transplant” segments of Paradise Reef to an alternative location, which was
highly contested by experts due to low success rates in past endeavors (Preston 1996).

The result of these events is known today as the “Cozumel Pier Case” in which the
Mexican government was accused by environmentalists of circumventing environmental
laws to promote pier construction (Moore 1996). The “Cozumel Pier Case” was filed with
NAFTA by concerned environmentalists in an attempt to expose the Mexican government’s
lack of adherence to their own environmental impact assessments. The lawsuit never
intended to stop the construction of the piers; it merely sought to construct the piers in a
different location and to heighten awareness of the Mexican government’s lack of
consideration for the environment when proposing development options. The attempt to
“scale-up” the environmental violation faltered and the construction of the piers continued.
After construction was completed, the newly built cruise ship piers tripled the amount of
cruise ships visiting the island and fostered the construction of new facilities on the island
contributing to sedimentation and runoff. This sequence of events in Cozumel mirrors a
theoretical concern presented by Davenport and Davenport (2006: 281) who reference
Holder’s (1988) ‘self destruct theory of tourism’ in their review of the various impacts of
tourism on coastal environments.
This theory states that an attractive natural place may become developed for an upscale exclusive market wanting low density settlement and willing to pay top prices. Soon other developers move in and competition develops. In order to fill rooms, rates are lowered, standards are proportionately lowered and the place becomes a destination for mass tourism.

This is the progression which Cozumel’s tourist development has followed. The island has transformed itself from a low-density ecotourism location to a high-density mass tourism destination, which runs counter to the typical processes that invoke ecotourism to begin with. The perennial question, of course, is whether or not the negative environmental, social and economic impacts alluded to in the article by Davenport and Davenport (2006) can be avoided.

The sea is Cozumel’s saving grace. The fishermen of Cozumel have always managed to eek out an existence from the sea and today the southern half of Cozumel is widely heralded as one of the world’s most beautiful dive sites. Today Cozumel’s reefs are protected as a national marine park that lures thousands of dive tourists a year to witness the abundant and exotic sea life that Cozumel’s waters have to offer. But as we have seen, Cozumel’s fascinating environment is being threatened by political and economic aims to increase coastal tourist development.

Recent examples of the concerns associated with cruise ship piers in Cozumel consist of accidents that have occurred due to ship related hazards. Dow notes, for example, that 80% of shipping accidents are attributable to human error (1999: 423). One of the chief objections to pier construction in Cozumel expressed a concern with ships running aground and discharging hazardous materials into coastal areas. This concern became a reality when the cruise ship Carousel, owned by Sun Cruises, hit rocks near the port of Calica, a cruise port across the strait from Cozumel near Playa del Carmen, in 2000 (Associated Press 2000). According to the report, the ship damaged a propeller and leaked 45 tons of oil into the ocean, contaminating beaches. A more recent incident reported on an internet message board noted that on the 17th of March 2005, the cruise ship Inspiration, which had been blown by a squall into a restricted area of the marine park, passed within a meter and a half of a group of 12 divers threatening their lives and stirring up sand and sediment (Divecozumel Newbie 2005). Near disasters such as these illustrate the very real concerns
Cozumelinos have with cruise ship pier construction and the increased amounts of cruise ships the projects facilitated. This becomes even more relevant with observations from scholars such as Robert Wood (Wood quoting Dickinson 1993: 115) who points out that,

> Caribbean destinations must walk a fine line between promoting their uniqueness and trying to meet the expectations and desires of mass tourists, particularly in a context where the President of Carnival Corporation can say, “The limited number of countries and ports offered [in the Caribbean] is not a deterrent to Carnival customers; after all the ship is the attraction, not the port of call”.

**Thesis Outline**

The thesis will progress as follows. Chapter 2 will discuss the literature reviewed for the thesis. This consists of a review of both ecotourism and political ecology, which enables the study to examine the political and economic forces that have shaped the tourist development and ecology of Cozumel today. Political ecology is especially helpful in that it provides new and insightful ways for researchers to examine the human and environmental interactions that take place across a variety of scales, stakeholders, and institutions. Chapter 3 will provide an in-depth account of the methods used in this study. It will focus on the methodological merit and discussions surrounding mixed method research techniques, in this thesis’ case, interviews and remote sensing. Chapter 4 will examine the various environmental observations of Cozumelinos and other interviewees in regard to the terrestrial socio-cultural and environmental concerns associated with the developmental growth of Cozumel’s primary town, San Miguel. Chapter 5 highlights the aquatic environmental concerns associated with Cozumel’s national marine park as well as the conflicts and varied interests involved with the multiple interactions amongst stakeholders within the marine park. Finally, in chapter 6 the thesis will conclude with a summary and discussion of the author’s findings and will provide the reader with future research avenues.
Chapter 2

ECOTOURISM, POLITICAL ECOLOGY AND GEOGRAPHY

Of all the activities that take place in coastal zones and the near-shore coastal ocean, none is increasing in both volume and diversity more than coastal tourism and recreation. Both the dynamic nature of this sector and its magnitude demand that it be actively taken into account in government plans, policies, and programs related to the coasts and ocean. Indeed, virtually all coastal and ocean issue areas affect coastal tourism and recreation either directly or indirectly. Clean water, healthy coastal habitats, and a safe, secure, and enjoyable environment are clearly fundamental to successful coastal tourism. Similarly, bountiful living marine resources (fish, shellfish, wetlands, coral reefs, etc.) are of critical importance to most recreational experiences. Security from risks associated with natural coastal hazards such as storms, hurricanes, tsunamis, and the like is a requisite for coastal tourism to be sustainable over the long term.

National Oceanic and Atmospheric Administration (1988)

Introduction

Although the quote above refers to the United States, there are clear correlations between American and Caribbean locations in regard to the growing trend of coastal tourism throughout the Caribbean. However, the point I would like to make is that the quotation only refers to natural hazards as a concern to coastal tourism. Unmentioned in the above quote is the environmental impact of unchecked political economic forces on tourist locations. The island of Cozumel is certainly in a hazardous path for hurricanes (Cuarón et al 2004), but the day-to-day environmental concerns of Cozumeleños are not in reference to the periodic yearly hurricanes that sweep through the Caribbean; they are in reference to the tourism activities that are taking place on the island as a result of increased tourist development and cruise ships visiting the island.

Therefore, due to the concerns of changing tourism types on Cozumel, the literature review will highlight ecotourism and political ecology. The beginnings of Cozumel’s tourism economy are best understood using ecotourism literature bases which contribute to the thesis by outlining the positive components of ecotourism when juxtaposed with mass tourism and providing an alternative tourist model. The advent of cruise tourism on the island, given its political, economical and ecological implications, is a prime study for
political ecology, which seeks to combine “the concerns of ecology and a broadly defined political economy” (Blaikie and Brookfield 1987: 17). Therefore, political ecology will contribute to this thesis by providing a way in which the connections and contentions between the political economic initiatives of developers and the natural environment of Cozumel can be elucidated. There are two primary areas of research within political ecology in which this thesis will contribute. The first is the understudied area of the political ecology of tourism that both Susan Stonich (1998) and Stefan Gössling (2003) have noted. The second area deals with recent observations by Bryant and Bailey (1997), Kirstin Dow (1999), Karen Nichols (1999) and Carolyn Trist (1999) calling for the study of coastal areas, marine spaces, marine protected areas, and marine tourism respectively. Cozumel presents a unique case study opportunity to examine issues pertaining to tourist development in coastal and marine spaces using the literature bases of ecotourism and political ecology.

Ecotourism

Prior to ecotourism’s emergence on the global tourism scene, Cozumel had serendipitously established a tourist economy as close to the central tenets of ecotourism as any in the world today. Although little state planning was involved at this early stage in Cozumel’s tourist development, the visitation of Jacques Cousteau to the island in 1961 piqued the interest of divers who came from all over the world to visit the island’s resplendent reefs (Isla Cozumel 2006). However unplanned this tourist development on Cozumel was, the central components that had been created as a result of it were fortunately in line with the goals of ecotourism. These components consist of the following three attributes of the dive tourism economy which took place in Cozumel after 1960. Firstly, prior to the 1970s dive based tourism in Cozumel focused on the aquatic environment of the island, especially its reefs, as the primary lure for visiting tourists (Cozumel My Cozumel 2006). Secondly, in the 1980s and early 1990s, dive tourists were not only interested in educating themselves about the ecology of Cozumel’s reefs, but also found themselves entranced by the island’s rich Mayan heritage and the Yucatecan people’s “amabilidad” or kindness. Finally, a majority of the businesses on the island were owned by Mexicans or Cozumelanos, which strengthened the local economy, reduced export leakages and provided jobs for local families (Cozumel Insider 2006). These components of nascent ecotourism in Cozumel were the predecessors to a series of projects to make the island more attractive to a
broader range of tourism investment. However, this influx of tourist investment came at a price. Throughout the 1970s, 80s and 90s, large hotels sprung up along Cozumel’s coast. Foreign investors opened up stores pushing smaller locally owned stores to the backstreets. As a result of this growth, Mexicans from the surrounding area moved to Cozumel in the hopes of finding jobs while increased tourist participation in the global cruise tourism market proved irresistible to entrepreneurs intent on getting a piece of the burgeoning cruise ship industry operating within the Caribbean Sea. However, to appreciate the value of what Cozumel had, we must first turn to why Cozumel was the exception to tourism during the 1960s and 70s and not the rule.

**The Rise of Ecotourism**

The incipient roots of ecotourism can be traced to the environmental movement in the United States during the late 1970’s and early 1980’s in which a heightened sense of concern for the environment came at a point when the ramifications of economic progress were making themselves apparent in various locations throughout the world (Honey 1999). The primary instance of this concern is in regard to tourism. Many localities, especially peripheral states located in beautiful scenic areas, agreed that the recent mass tourism facilitated by an increase in disposable incomes of tourists, improved technological innovations in communication and travel transportation did more harm than good for the citizens of their nations. This sentiment culminated in 1980 at a conference in the Philippines, which brought about the creation of the “The Manila Declaration on World Tourism”. This conference advocated a need for change within tourist destinations. It also called for a more active role in enhancing the environmental and societal welfare of the locations in which tourism activities take place. The conceptual precept that manifested this socially and environmentally conscious change in global tourism is known as ecotourism.

At the outset, ecotourism received a multitude of different definitions that changed depending on who was referring to the term. Perhaps the most utilized is the Ecotourism Society’s definition, which is “Responsible travel to natural areas that conserves the environment and improves the well-being of local people” (The International Ecotourism Society 2005). In a more thorough definition, Honey describes ecotourism as “travel to fragile, pristine, and usually protected areas that strives to be low impact and (usually) small
scale. It helps educate the traveler; provides funds for conservation; directly benefits the economic development and political empowerment of local communities; and fosters respect for different cultures and for human rights” (Honey 1999: 25). There is currently no consensus as to a universal definition and different scholars choose different aspects to include or exclude. For instance, there is much debate as to whether or not heritage and cultural aspects should be included in the framework of ecotourism or if ecotourism should strictly refer to physical, earth features (Garrod and Wilson 2003). The coining of the term ecotourism in 1983 is claimed by Hector Ceballos-Lascurain. Weaver notes that there “remains a great deal of confusion and dispute over the meaning and application of the term” (Weaver 1998). The primary distinction of ecotourism, which sets it apart from similar forms of tourism such as nature or adventure tourism according to Honey (1999), is that ecotourism is concerned with the benefits that are allocated to the location in which ecotourism takes place; whereas the aforementioned tourism categories simply consider in what activities the tourist participates.

Central Features of Ecotourism

Ecotourism began a developmental process in which it would reinvent itself several times over. This process is summarized superbly by Honey (1999: 11), who provides a detailed and comprehensive historical account of the different sources that had an influence on ecotourism’s development.

Between the late 1970’s and mid-1980’s, the new field known as ecotourism gradually took shape. The definition has often been vague: it is frequently referred to as ‘responsible,’ ‘sustainable,’ ‘conservation,’ or ‘low impact’ tourism and is often listed by the travel industry in the category of nature or adventure tourism. The confusion over definition is partly due to its historical roots, which, broadly stated, can be traced to four sources: (1) scientific, conservation, and nongovernmental organization (NGO) circles; (2) multilateral aid institutions; (3) developing countries; and (4) the travel industry and traveling public. Almost simultaneously but for different reasons, the principles and practices of ecotourism began taking shape within these four areas.

In regard to the first and third influential sources, scientific, conservation, and nongovernmental organization circles, as well as developing countries, ecotourism is
generally viewed as a positive development strategy in which Latin American and African nations can foster economic development without having to compromise their economies or environments by enticing and facilitating industrial economies (Honey 1999). By establishing conservation areas, peripheral states provided recreation areas for ecotourism activities to take place while preserving pristine flora and fauna, which Cater notes as a comparative advantage “…in terms of the variety and extent of unspoiled natural environments” (Cater in Cater and Lowman 1994: 69) within these locales.

Concomitant with the allocation of conservation areas in Latin America and Africa were funding and investment opportunities for national governments from the second and fourth influential sources, multilateral aid institutions such as the World Bank, United Nations Environment Programme (UNEP), Inter-American Development Bank (IDB), the Organization of American States (OAS), the U.S. Agency for International Development (US AID) and private firms within the travel industry (Honey 1999). These international institutions and businesses began promoting and funding various tourism and ecotourism projects throughout the world. However, these actions were often criticized, especially in regard to the World Bank, because some members felt that “… the bank should be investing in low-cost housing and other poverty reduction programs, not in luxury hotels and large infrastructure projects to support international tourism and the private sector” (Honey 1999: 15).

Furthermore the formerly public natural areas set aside for ecotourism, which had previously been accessible to local populations, were oftentimes deemed off-limits to the same populations after their designation as a conservation area. Eventually, due to mounting criticism, multilateral aid organizations ceased their funding for tourism infrastructure and contestations over previously utilized land designated for preservation began creating conflict between prior users, their new users and the respective government. This resulted in the incorporation of one of the key terms and concepts of ecotourism, that of the “stakeholder”, which argues that local inhabitants “[…] should benefit from tourism and will save nature in the process” (Honey 1999: 12 quoting David Western 1992). The allocation of economic benefits to the local population, therefore, is well established as a primary theoretical goal of ecotourism. This alteration of ecotourism’s conceptual framework
reduced the negative effects of neoliberal economic institutions acting at a global scale, one of the primary problematic features of this economic structure being export leakages from the tourist destination to corporate headquarters in core states (Honey 1999, Cater 1995).

**Ecotourism and the Rise of Sustainability**

Aside from the numerous negative and debilitating economic issues that came to light in the 1980’s, in the 1990’s the tourism community eventually realized the importance of the environment and began to make a conscientious change. In regard to ecotourism, Erlet Cater mentions how, “[t]he final interest, that of the environment, is the essential cornerstone. Unless the environment is safe guarded tourism is in danger of being a self-destructive process, destroying the very resources upon which it is based” (1995: 22). Honey (1999: 20), echoes this sentiment further by highlighting the significance that the 1992 Rio Earth Summit had on ecotourism.

Because the tourism industry, more than any other, depends on a clean environment, it has embraced ecotourism as a means of survival. The 1992 Earth Summit, held in Rio de Janeiro, Brazil, resulted in the Rio Declaration of Environment and Development and Agenda 21, which together make up an environmental blueprint for the future that calls on industry, to develop a strategy for sustainable development.

The components of sustainability, while arguably idealistic and generalized, had a profound effect on ecotourism. Ecotourism desired the same goals that sustainability sought, primarily the preservation of resources for future generations. By the early 1990’s, as Honey notes, “the concept [ecotourism] had coalesced into the hottest new genre of environmentally and socially responsible travel” (Honey 1999: 11).

**Ecotourism Today**

Ecotourism is viewed by many advocates as a viable economic engine to promote ecologically and culturally sustainable development; however, it is also widely critiqued for various reasons. Two chief complaints consist of “green washing” and “eco-labeling”. Both terms are marketing tactics in which corporations label their business practices as environmentally sound when in fact they do not meet eco-certification criteria or are not ecologically friendly at all (Honey 1999, Cater and Lowman 1994). Furthermore, one of the
primary and persistent questions after ecotourism adopted sustainability as a guiding principle is qui bono, or who benefits? (Burns 2004: 26 quoting Strange). Or as Cater and Lowman phrase it, “for whom will ecotourism development be sustainable?” (1994: 5). These concerns lead Cater and Lowman to view sustainability and ecotourism as “overworked terms, neatly co-opted by political and business interests to confer an aura of respectability to their activities. In both instances all that may be involved is a relabelling of the status quo, as Rees (1990) suggests ‘a laboured excuse for not departing from continued economic growth’” (1994: 5), if there is any economic growth to speak of in the first place. Peter Burns (2004: 25) expounds on this point by noting a significant flaw of ecotourism in that:

> Exhortations to ‘leave only footprints’ (Roe, Leader-Williams, and Dalal-Clayton 1997) carry an ironic and unintentional truth because footprints with no dollars attached do little to develop the industry to a level of critical mass that can supply large-scale employment and a reliable stream of tax revenues to be used to implement beneficial government policies including health, education and welfare (2004: 25).

Although reverence for the environment is a key component of ecotourism - in theory, in reality it is often jettisoned in the pursuit of capital. In essence, these actions have created a new era of ecological complexity in which “[e]cological problems are not viewed as ‘acts of nature’ but as a result of unchecked and weakly regulated capitalism” (Burns 2004: 30). In addition, most tourist development plans, as well as the capitalistic economic system in which ecotourism is confined; the costs of the environment are not taken into consideration (Cater 1995). Therefore, while some proponents of ecotourism advocate that the ecotourism economy may provide a “panacea” in which all the world’s development problems will finally be solved; there are also a significant number of critics in the middle of the spectrum who see ecotourism as a sort of contradiction in terms; while “Some experts have pronounced ecotourism dead, passé, or hopelessly diluted” (Honey 1999: 25).

Ecotourism is conventionally thought of as a positive developmental shift away from mass tourism to remedy the ills that are incurred with mass tourist development. The developmental trend in most tourist locations has typically followed a procession in which mass tourism develops first with ecotourism following as a remedy. Yet what if a location
has an ecotourist economy and it is not considered profitable enough? Whose developmental philosophies would be implemented and whose would be discarded? What would be the debates, conflicts, and ultimately the results of these various courses of tourist economic development? This case study of Cozumel highlights some of the observations of these transitional changes from an ecotourist location to a mass tourist location within a geographic context to further illuminate the benefits of ecotourism when juxtaposed with one of its alternatives, mass tourism.

**Marine Ecotourism**

To understand Cozumel’s role within ecotourism, it is necessary to explain the basic components of marine ecotourism. While there are multiple activities compiled within the category of marine ecotourism, such as whale watching, glass bottom boat and submarine trips, and snorkeling; quite possibly the largest and most prominent form of marine ecotourism is SCUBA (Self Contained Underwater Breathing Apparatus) diving. Ludger Brenner and Adrian Guillermo Aguilar (2002) are a few of the many researchers (also see the following authors referenced in their article: Armstrong and McGee 1985, 49; Mullins 1991; Lash and Urry 1994, 216; Urry 1995, 123) who have contributed to the mounting evidence illustrating how many tourist “…towns and cities are being reconstructed as primary centers not of production but of consumption” (502). Garrod and Wilson (2004) assert that “ecotourism is usually associated with geographically remote places and spaces. Hector Ceballos-Lascurain’s (1987:14) seminal definition of ecotourism, for example, includes the clause, ‘relatively undisturbed or uncontaminated natural areas’” (97). Under these conditional pretenses and the beginning of Cozumel’s tourist economy with the initial visit of Jacques Cousteau to Cozumel, ecotourism was the dominant tourist market until the 1990s. In fact, Cozumel was so secluded up to this point that the island was used as a hideout for Pirates and the Yucatan region was known to many Mexicans as the “empty quarter” (Torres and Momsen 2005). Cozumel’s secluded nature allowed the coral reefs to flourish, cultivating the magnificent coral formations that would become the principle tourist lure for Cozumel.
**Marine Ecotourism’s Benefits**

Cozumel’s attractive coral reefs facilitated most of the positive development features that marine tourism is credited with providing by Garrod and Wilson (2004: 104 - 113). These consist of the following developmental benefits:

1) Marine ecotourism is capable of presenting peripheral coastal areas with a development alternative that is more likely to be sustainable than most other activities for which they have economic potential.

2) Peripheral areas contain the pristine marine resources that are highly sought after by marine ecotourists. A feature shared by many peripheral areas is an abundance of pristine coastal and marine environments: the kinds that contain the species, ecological attributes and landscape features that are highly sought after by ecotourists.

3) Marine ecotourism offers the opportunity to redeploy unemployed or under-employed resources and the need to invest in infrastructure.

4) Marine ecotourism can help address the seasonality problems faced by peripheral areas.

5) Marine ecotourism represents product diversification rather than market diversification.

6) Marine ecotourism tends to suffer lower ‘leakage factors’ than other forms of economic activity in peripheral areas.

Garrod and Wilson (2004) (among others, see Boo, 1991; Saleh & Karawacki, 1996) point out that “[a]s a market segment, ecotourists are generally considered to be more like local residents, eating and drinking locally produced products, buying locally produced souvenirs, and staying in types of accommodations that can more easily be provided by the local community” (113). However, Garrod and Wilson are also aware of some of the disadvantages of marine ecotourism.

**Marine Ecotourism’s Disadvantages**

Despite the previously mentioned advantages mentioned above, marine ecotourism is an inherently tricky entity to regulate. Due to the multifaceted nature of ecotourism, planning,
developing and regulating marine ecotourism effectively is an elusive and widely debated topic. Below are five “pitfalls” that Garrod and Wilson (2004: 115 – 116) point out in regard to marine ecotourism.

1) Starting with the risk of an overdependence on global tourism industry, the first point to note is that like most kinds of tourism, marine ecotourism forms dependent relationships with the global tourism industry, at least to a certain extent.

2) The second pitfall concerns transboundary issues in planning and regulation: an issue that is more endemic to marine ecotourism insofar as much of its activity takes place in the coastal zone or at sea, where boundary issues can be a real problem (Wilson 2003).

3) The third pitfall surrounds the considerable lack of knowledge of the biology of the target species in question and even less knowledge of the effects of marine ecotourism activity upon their health and well-being. There is, for example, substantial controversy over ‘swim with’ tours targeting dolphins, whales and sharks.

4) Fourthly, different attitudes to local community participation in maritime ecotourism can also represent a pitfall.

5) The fifth risk of over-dependence on marine ecotourism is the strong competition that exists for the worldwide ecotourist market.

These “pitfalls” are important considerations that ought to be weighed in comparison to the positive aspects of ecotourism. Cozumel is currently grappling with every one of the aforementioned pitfalls of marine ecotourism. Therefore, it is beneficial to use another theoretical approach that strives to examine these complex human and environment interactions, but is also sensitive to the geographical uniqueness of an area. Within geography this approach is known as political ecology.

**Political Ecology**

Given the complexity of the different types of tourism development that have taken place in Cozumel, it is important to use a geographical approach that deals with the intersections of human and environment interactions. This is the reason why political ecology has been recruited for this study. Political ecology is an approach within the social sciences that allows researchers to understand the complex interactions between society and
environment within the field of geography. Recent research by political ecologists has shed light on the factors, actors, agencies, institutions and motives that have played a role in contemporary environmental concerns throughout the world. Using an extensive array of conceptual methods enables political ecologists to illuminate previously hidden factors and actors involved with contemporary environmental problems. The political ecologist’s “toolkit” has also aided in the investigation of causal factors and stressors at varying global, national, and local scales. What follows is a brief description of the development of political ecology, followed by an overview of the principle conceptual tools that the approach utilizes. The chapter will close by outlining how this study of Cozumel will contribute to the political ecology literature by addressing two under-studied niches within political ecology; most notably marine spaces and tourism related phenomena.

The Rise of Political Ecology

As Robbins (2004), Gössling (2003), Bryant and Bailey (1997), Peet and Watts (1996) and Blaikie and Brookfield (1987) all note, the origins of political ecology began in 1972 with an article by the anthropologist, Eric Wolf. However, within geography, many of the foundational concepts of political ecology emerged with the influential work by Piers Blaikie and Harold Brookfield, *Land degradation and society* (1987). Within this text Blaikie and Brookfield define political ecology as an approach that “combines the concerns of ecology and a broadly defined political economy” (1987: 17). Overnight this text became the theoretical cornerstone for political ecology.

The primary focus of that text is to understand the phenomena of land degradation, not solely through localized accounts and phenomena, but through “chains of explanation” (Blaikie and Brookfield 1987: 27) amongst environmental issues and larger political and economic forces. In contrast to other contemporary findings regarding land degradation, Blaikie and Brookfield innovatively argue that land degradation does not simply occur because of increased populations, as Malthusians would argue, or because of the ignorance of the land managers within the area. Indeed, quite the inverse; Blaikie and Brookfield argue that land degradation occurs due to larger political and economic forces that persuade local farmers to increase their agricultural output, which then leads to the degradation of their land. These extrapolations across, between and among influential actors and varying
geographic scales became a central theoretical and methodological focus within political ecology. However, *Land degradation and society* is not free of criticism and many critics have attempted to illuminate problematic features of Blaikie and Brookfield’s work. For example, Black (1990) argues against Blaikie and Brookfield’s methodological “chains” of explanation, which convey a linear and hierarchical structure in contrast to more current and accepted theories of explaining ecological phenomena in terms of networks (Robbins 2004). Nonetheless, *Land degradation and society* is still viewed as the definitive initial text of political ecology.

**Conceptual Arenas in Political Ecology**

**Third World Political Ecologies**

In 1997, Bryant and Bailey built on Blaikie and Brookfield’s theoretical cornerstone to examine what they referred to as “Third World Political Ecology”. By breaking Third World political ecology down into its component parts, such as the state, institutions, and non-governmental organizations, Bryant and Bailey make connections between political, economic and ecological forces more apparent by highlighting what they refer to as a “politicised environment” (1997: 27) in which the conflicts and issues of political ecology play out. A year later, Bryant (1998) published one of the most comprehensive literature reviews of political ecology to date. Bryant outlines the various phases’ third world political ecology has gone through since the 1980s, which consist of neo-Marxist thought and other theoretical arenas that will be discussed below such as poststructuralism, feminism, and peasant movements. In the closing segment of this article Bryant also recommends areas of further research for political ecologists, which include marine areas, urban areas and the human body (Bryant 1998). While Bryant and Bailey provide a comprehensive overview of third world political ecology, critics of the term “third world” stray from using it in conjunction with political ecology due to the fact “that ‘first-world’ political ecologies are not so very different from ‘third-world’ political ecologies” and that this terminology “is itself problematic in that it remains, paradoxically, trapped within the very binary geographic framework that it calls into question; worse, it raises the danger of further retreat in political ecology away from examination of large-scale processes” (Walker 2003: 8).
**Marxist Political Ecology**

Political ecology has benefited from a variety of theoretical perspectives. As Peet and Watts mention in their book *Liberation Ecologies*, political ecology developed as a geographical approach “...in the crucible of Marxian or neo-Marxian development theory, this new ‘political ecology’ was not inspired by the isolated rural communities studied by Rappaport, but by peasant and agrarian societies in the throes of complex forms of capitalist transition” (2004: 9). This had a profound effect on political ecology because Marxists, like political ecologists, were not satisfied with Malthusian or Neo-Malthusian explanations of environmental stressors, which largely focused on burgeoning populations (Robbins 2004, Bryant and Bailey 1997, Peet and Watts 1996). Political ecologists argue that Malthusian explanations of environmental degradation overlook the power relations between political, societal, economical, institutional and technological changes that affect the environment and the people who live and work in these areas. Marxist critiques provided political ecology with the tools necessary to examine the effects of political economic forces on the environment.

This Eco-Marxist trend continues to the present with influential Marxist writers such as David Harvey contributing in the area of urban environments and James O’Connor in his journal “Capitalism, Nature, Socialism”, examining environmental phenomena from the stance of the second contradiction of capital (Peet and Watts 1996). The second contradiction of capital notes the inability of capitalism to create labor or natural resources, which is complicated by the inherent features of capitalism that strive to produce a profit and consequently results in the overexploitation of natural and human resources that it can not regenerate. Adding to this Marxist literature base are theoretical discussions regarding the commodification or production of nature. Noel Castree and Bruce Braun (2001) are just two of the scholars who have provided a variety of avenues in which to contemplate the effects of societal and economical development on nature and the implications this has for the environment and society. This robust Marxist influence on political ecology, while not entirely accepted amongst political ecologists, is helpful in attempting to provide alternative explanations of human-environment interactions and development schemes that strive to minimize the detrimental impacts of capitalism on the physical environment.
**Poststructuralist Political Ecology**

The next influential theoretical contribution to political ecology is poststructuralism. Poststructuralism and its concern with discourse was initially conceptualized and expanded upon by the French philosopher Michel Foucault, among others (1972). Within political ecology, poststructural methods of analysis have been led by writers like Richard Peet and Michael Watts (2004), Arturo Escobar (in Peet and Watts 1996), and, to a lesser extent, Paul Robbins (2001). This emphasis on poststructural thought contributes to political ecology by examining the ways in which power relations are dispersed, mediated and contested by various actors through language. A concise summation of how poststructuralism contributes to analyses within political ecology is explained by Escobar who notes that, “[p]oststructuralism focuses on the role of language in the construction of social reality; it treats language not as a reflection of “reality” but as constitutive of it” (Chapter 2 in Peet and Watts 1996: 46). Political Ecology benefits from using these alternative theoretical frameworks because they mesh well with Arturo Escobar’s point that “No identity or society can be described from a single and universal perspective”, which enables political ecologists to investigate a “plurality of natures” (Escobar 1999: 3). Arguably one of the most influential political ecology books to date by Peet and Watts (1996) examines not only the history and development of political ecology but also the poststructural debates, amongst other theoretical debates, within political ecology. In Peet and Watts’ own words:

*Liberation Ecology* highlights...new theoretical engagements between political ecology, Marxism and social theory on the one hand, and a practical political engagement with new movements, organizations and institutions of civil society challenging conventional notions of development, politics, democracy and sustainability on the other. (1996: 6)

With an emphasis on discourse and the political and economic organizations and institutions that use discourse in attempts to wrest power from others, poststructuralists are providing a varied and alternative view to the way in which we understand “taken for granted” words such as nature and environment. By unpacking these terms in historical, political, and economic contexts, poststructuralists provide a more insightful and nuanced perspective of issues pertaining to power relations in political ecology studies.
Some examples of poststructural studies include Escobar’s examination of the changing discourse from modern conceptions of nature as an exploitable and autonomous entity, to that of nature’s contemporary counterpart, the environment, in which governments and corporations strive to protect and control through conservation agendas in the hopes of creating new commodities in the biochemical industry and other economic niches (Chapter 2 in Peet and Watts 1996). Another example is by Paul Robbins (2001) who draws from Bruno Latour’s poststructural account of why present landscapes can not be modern given the historical influence of man, introduced species and the failure to eliminate all traces of “wild” species, which results in a hodgepodge landscape of mixed species. Poststructuralism has played a vital role within political ecology by examining how discourse plays a role in power relations in regard to environmental concerns.

**Political Ecology and Sustainability**

Considering that sustainability has become such a catch phrase for so many environmental and governmental pursuits, it is only logical that political ecologists find the concept a worthwhile topic for further explanation. Sustainability is such a catch phrase that “…the new lexicon is so endemic that it appears with as much frequency in the frothy promotional literature of the World Bank as in the rhetoric of the Sierra Club, the US military, or the myriads of Third World grassroots environmental and community movements” (Peet and Watts 2004: 5). In regard to Marxist critiques and poststructuralism’s method of discourse analysis, political ecologists find themselves intrigued with issues pertaining to sustainable development primarily for the reasons mentioned above, because sustainability means so many different things to different people and institutions.

Within the more radical circles of political ecology, sustainable development is viewed not as an entity that is utilized in sustaining the environment, but of sustaining the capitalist “business as usual” mentality that is entrenched within neo-liberal economic policy. In this context, as Escobar explains, “In the sustainable development discourse, nature is reinvented as environment so that capital, not nature and culture, may be sustained” (Chapter 2 in Peet and Watts 1996). Under these contemporary conditions where the neo-liberal economy is privileged over the environment, it is clear to James O’Connor (1998) that it is highly unlikely that the environment and capitalism will coexist in a sustainable manner.
**Feminist Political Ecology**

Another theoretical perspective that contributes richly to political ecology is feminism. Feminist political ecology, initiated by Rocheleau et al. in 1996, attempts to determine the locus of power in societies through identifying patriarchal structures and exploring “the ways in which environmental concerns are traced through gender roles, knowledges and practices” (Peet and Watts 2004: 15). Furthermore, feminist political ecology highlights the environmental complications that women deal with in a variety of settings. Some of these circumstances, as Rocheleau et al. (1996) point out “carry a disproportionate share of responsibilities for resource procurement and environmental maintenance and yet they have very limited formal rights (and limited political and economic means) to determine the future of resource availability and environmental quality” (Bryant in Castree and Braun 2001 quoting Roucheleau et al., 1996: 13). Bryant (In Castree and Braun 2001) continues to explain how feminist researchers such as Agarwal (1992: 156) found that

...the social marginality of women in male-dominated or ‘patriarchial’ societies was reflected in a dependency on environmental resources. For example, in poor Third World communities women were (and are) often responsible for gathering fuel wood or tending family food plots. Yet, since these resources are often also exploited by men – for example, through logging activities – the ensuing degradation only exacerbated the poor status of women.

This mixture of analysis between gender norms and their implications for their varied political and environmental interaction has provided political ecology with a wealth of information regarding how environmental issues and crises are handled.

**Ecological Theory and Traditional Ecological Knowledge within Political Ecology**

Recent calls for a more serious consideration of the implementation of ecological theory within political ecology have led to a wealth of information regarding the integration of ecological concepts into political ecology studies. Concerns over the ecological fate of political ecology are voiced by Peter Walker. Walker asks the question “Given its present trajectory, it may be valid to ask whether the field is likely to (or even whether it should) retain a claim to its identity as political ‘ecology’ rather than a primarily social science / humanities study of environmental politics” (Walker 2005: 73). This concern is not
substantiated, however, despite the critiques from Vayda and Walters (1999) who proclaim that political ecology is nothing more than “politics without ecology” (168). Although politics may come first in many political ecology studies, Walker (2005) points out several examples of political ecologists who have incorporated rigorous ecological components within their political ecology studies, such as Karl Zimmerer, Thomas Bassett, Tim Forsyth and Matthew Turner. Furthermore, there are a considerable number of calls by leading researchers to include contemporary ecological theories and conceptual models in political ecology studies utilizing “networks” instead of “chains” of explanations (Robbins 2004).

Another key conceptual emphasis within political ecology is traditional ecological knowledge or indigenous knowledge. This method of understanding human interactions with the environment is seen as particularly beneficial. It is short sighted for studies to neglect the utility of local knowledge which produces insightful information in regard to the use of land and the rationale for the methods used in the cultivation of that land. As Bryant and Bailey (1997: 161) point out:

> The general point here is that indigenous knowledge usually reflects a detailed appreciation and understanding of local environmental resources by grassroots actors, and that such knowledge has often served as the basis for highly effective environmental management systems allowing for simultaneous resource exploitation and conservation.

In this regard, political ecology makes a conscientious effort to counter preexisting studies that fail to take into account the perspectives of marginalized or excluded actors. These local environmental knowledges can prove to be windows of information that can lead to startling findings which provide insights into the “…accuracy and practicality of local ecological practices, especially amongst traditional people practicing subsistence production” (Robbins 2004: 118).

**Geography’s Role in the Political Ecology of Tourism and Marine Spaces**

Considering the sheer numbers of cruise tourists that visit Cozumel, in 2004 1,302 cruise ships with 2,862,032 passengers (Data Tur 2006), it is a wonder that more studies have not been done in regard to the effect of tourism on the island. Given the multifaceted nature of marine tourism and political ecology, Cozumel will be best analyzed from research
utilizing these two approaches within a geographic framework. The interdisciplinary nature of both ecotourism, as an interconnected tourist phenomenon, and political ecology as an integrative approach, lend themselves to the depth of understanding that geographical inquiry can provide. Furthermore, both bodies of literature are in need of contributions of an interdisciplinary, marine based nature. Marine based tourism issues are amongst the most understudied. Kirsten Dow points out how “Expanding geographical inquiry beyond its traditional, land-based foci into the oceans, particularly marine risk and pollution issues, offers a fruitful avenue by which to elaborate and refine our understanding of nature-society relationships” (1999: 415). Furthermore, Dow (1999: 416) quotes Bryant and Bailey (1997, 192-3) who suggest that:

Third World political ecology will need to expand beyond its anthropological-style focus on land management problems if it is to remain relevant to the changing dynamic of political-ecology conflicts in the Third World. However, our argument is...rather a plea that they also tackle non-land-based problems and conflicts [i.e. air pollution, industrial wastes, coastal development] more systematically as part of a comprehensive treatment of the political ecology of the Third World’s environmental crisis.

Another important factor in relation to Cozumel and its potential connection with political ecology studies is the marine park area that encompasses the area of Cozumel’s coral reefs. Karen Nichols (1999: 393) explains how,

This strategy [the creation of marine protected areas] reflects a mix of ‘state regulation’ and neoliberal adherence to private ownership tenets. In effect it gives de facto ‘ownership’ of particular resource use zones to favored groups such as scuba diving tourists, and deprives access to groups such as coral and sand miners that are deemed more overtly destructive of coastal habitat.

This range of conflicts addresses key arguments within geography and political ecology such as conservation, marginalization, sustainability and political-economic forces. Finally, the last indicator that I have to mention which expresses the need for studies regarding the political ecology of tourism comes from Stefan Gössling who states that “political ecology, an emerging field of interdisciplinary research addressing the politics of environmental change is an insufficiently used conceptual framework to analyze tourism development” (2003: xi). These calls for research illustrate the need for, and importance of a geographic
study of Cozumel’s tourist development. Using geography to situate the scalar interactions that take place in Cozumel between global forces, such as the cruise industry, and local forces, such as environmental activists, contributes to a fuller understanding of how global economic forces affect the ecology of tourist destinations. Geography, in conjunction with political ecology, enables this study to examine the political economic forces at work in Cozumel and highlight the environmental concerns associated with these interactions.
Chapter 3

MIXED METHODS: QUALITATIVE INTERVIEWS AND REMOTE SENSING

Introduction

In recent years there has been a call to combine research methods to enhance and broaden research studies (Philip 1998). This study of Cozumel relies heavily on qualitative methods - primarily interviews and observations - to elicit observations of concern for the environment. However, to enhance our understanding of environmental issues taking place in Cozumel it is helpful to combine qualitative methods with other methods, namely remote sensing in this study. This chapter argues that mixed methods will enrich this case study by not only taking into account Cozumelenses observations of Cozumel’s environment, but by also examining the changes in land cover and land use on the island as a result of tourist development over time. Recent studies have utilized interviews in conjunction with other methods, such as GIS (Geographic Information Systems) remote sensing and land use analysis (Bassett and Bi Zueli 2000; Robbins 2001). To reinforce the interview portion of my study, I employ remote sensing in a portion of my research that investigates Cozumel’s physical landscape through the classification and analysis of land cover via remotely sensed images. The benefits of a combined methodological approach utilizing qualitative methods in conjunction with remote sensing enhances any study by giving it more breadth and room for understanding the environmental concerns taking place in geographical contexts (Philip 1998).

Mixed Method Case Studies

Within geographic research and remote sensing literature - especially in society-environment intersections and approaches like political ecology - there are numerous studies that have utilized a dual methodological approach. These mixed method forms of data gathering techniques compile data such as interviews, and reinforce them with other types of geographic data such as GIS layers and remotely sensed images.
Thomas J. Basset and Koli Bi Zueli’s study on preservation methods in the Ivorian Savanna employed group interviews, aerial photos, GIS, and analyzed environmental programs to understand the complex and conflicting relationships among land use patterns, international aid, farmers and herders in Cote D’Ivoire (Zimmerer and Bassett 2003). Their findings included a discussion of the difficulty of planning environmental policies using aerial photos due to the limited area in which they portray. In addition, Basset and Koli Bi studied the persistent conflict between farmers and herders due to herder’s livestock trampling farmer’s fields as a result of state development programs that have tried to entice herders to come to the country. Their findings highlighted the differing environmental imaginaries between farmers, whose environmental imaginaries were more consistent with actual environmental conditions within their respective area, and those of policy makers, who lacked the experience of their peasant counterparts but had the authority to design environmental protection plans. The multi method approach in this study allowed for a rich and detailed analysis of the environmental issues and conflicts taking place in northern Côte d’Ivoire.

This study illustrates the conflicting environmental interests between actors at the local and state levels by showing how rapidly implemented state economic development plans can disrupt local livelihoods and environments. Through state initiatives that invite neighboring herdsmen into Côte d’Ivoire to graze their cattle and sell to local markets, local farmers and landholdings are disrupted by passing herdsmen who can’t keep their cattle from trampling local agricultural plots. Furthermore, the grazing cattle disrupt local grasslands previously used for a variety of purposes. Inevitably this leads to a triad of conflict between farmers, herdsmen and the state. This study relates to this thesis by utilizing mixed methods to not only illuminate the impact of economic development initiatives on land cover, but also the competing actors involved in utilizing natural resources.

Paul Robbins’ political ecology study of conflicting environmental imaginaries of reforestation efforts in Rajasthan, India used remotely sensed images of land cover along with interviews and local agricultural records. Through the use of these mixed methods, Robbins was able to demonstrate how Indian farmers had very different perspectives on what was considered to be a forest in comparison to their governmental forestry
counterparts. When shown these remotely sensed images, villagers described a demarcated area as “barren” while government foresters said that the same area was “forest” (Robbins 2001). The reason for the differing environmental imaginaries is because the area had been taken over by an invasive shrub species. This shrub, while considered to be tree cover by the government to bolster reforestation efforts, was virtually useless to rural farmers who were unable to use it for any purposes like fuel wood. This study suggested that like any other map, remotely sensed maps can be manipulated or depicted to show what the cartographer wants. In this case technologies such as geographic information systems and remotely sensed images have the potential to become politicized. Although the issue of competing land cover classifications is not the central argument of this thesis, it does illuminate some of the problematic methodological areas of using remotely sensed images. Furthermore, it illustrates the tensions between actors and available technologies and the power that these new technologies hold.

One area of similarity between this study and Robbins’ is in relation to the contradictory positions that governments can maintain between what is actually on the ground and the policies in which they support. In Robbins’ study it is the issue of the government applauding reforestation efforts when in all actuality there is marginal reforestation taking place. In this thesis it is the issue of the Mexican government establishing a national marine park to reduce the potential for coral reef destruction, yet allowing hotel construction along the coast that contributes sediment in the construction process and raw sewage throughout the existence of the hotel. Remote sensing and interviews will allow this study to determine just how much development along the coast of Cozumel’s national marine park has occurred.

A third researcher who highlights the merits of utilizing a combined methodological approach is Hong Jiang (2003). In this study Jiang emphasizes the importance, and limitations, of understanding local inhabitant’s explanations of the changes occurring within the environments in which remotely sensed images are taken (2003). As Jiang notes,

Remote sensing images reflect the material basis of cultural landscapes that can only be understood through the meanings people assign to them and the perceptions people have of the environment. Furthermore, the reciprocal
interactions between landscape and culture can be revealed in the analysis of remote sensing images: the material landscape not only demonstrates the consequences of cultural practices, but also carries messages about natural limitations on these practices. Therefore, remote sensing analysis has the potential to further inform us of the dynamics of the culture-landscape relationship.

By interviewing the local inhabitants of Uxin Ju, a Chinese village in Inner Mongolia, Hong Jiang was able to unearth a paradox in land use. Jiang was able to determine that there was both a positive and negative change in the land use patterns within Uxin Ju. Desertification and increased farmland cultivation in the area, due to continued irrigation, depleted groundwater in the area after several years of drought. While the remote sensing images illustrated this phenomenon rather quickly, it took some time for the change to reveal itself in the ethnographic interviews. While it is not always the case, Jiang (2003: 227) found in this study that “local ecological knowledge is limited, particularly in landscape patterns and landscape level connections. This makes the addition of remote sensing techniques important.” In summation, Jiang’s study highlights the utility and dynamic possibilities of combining ethnographic interviews with remote sensing. This fruitful combination allows a research project to illustrate landscape-level connections and large-scale spatial patterns, which are beneficial components of remote sensing analysis (Jiang 2003: 227).

In this study the observations of the environment of Cozumel are important because if the island’s environment is deteriorated then the tourist economy in which Cozumel is dependent will certainly suffer, which may lead to exacerbated poverty and social tensions. However, remote sensing, as Jiang rightfully notes, has the capability to contribute a more thorough understanding of the spatial patterns of tourist development on Cozumel than an interview would be able to. By utilizing mixed methods it is possible to have a data source that can “back-up” areas of inquiry lost due to a lack of information.

These studies are just a few of the numerous mixed method studies that have contributed to human-environment understandings. Each example portrays a study in which the utilization of mixed methods broadened and enhanced their study, providing the reader with a more thorough understanding of the geographic phenomena occurring in that place. Continued research using mixed methods will eventually reveal more of the benefits
that are attainable with combined methods and silence critics unaware of the advantageous nature of mixed methods. To conceptualize the mixed methods in which this study will use, I move on to the two methods that this study uses; interviews and remote sensing.

**Interviews**

**Introduction**

Of the two primary methods of research that I utilize in this study, the first one I will discuss is the interview. I chose to use semi-structured and unstructured interviews because this research project, from its inception, has been fundamentally linked to human observations of change as articulated through conversations with people on previous trips to Cozumel. My research questions are,

1) What are the public and private policies which have initiated the change in Cozumel’s coastal areas and what are the contentions that have resulted from it?

2) How do stakeholders, specifically dive tourists, dive masters, expatriates, activists, and governmental employees; perceive tourist development on Cozumel and how do these various stakeholders perceive the recent increase in development on the island?

This study primarily utilizes the semi-structured and unstructured interview because they provide flexibility for allowing interviewees to elaborate on their answers. In addition, these interviewing methods facilitate a discussion type of environment that makes the interviewee feel more at ease (Valentine in Flowerdew and Martin 1997). The usefulness of this approach has been advocated by various authors (Hay 2000, Baxter and Eyles 1999) and “is one of the most common and powerful ways in which we try to understand our fellow human beings” (Fontana and Frey in Denzin and Lincoln 2000: 645). An unstructured interview “takes a conversational, fluid form, each interview varying according to the interests, experiences and views of the interviewees” (Valentine in Flowerdew and Martin 1997: 111). Interviews have the potential to gather more detailed information when compared to other research methods such as questionnaires and other straight forward techniques by acting as “a dialogue rather than an interrogation” (Valentine in Flowerdew and Martin 1997: 111).
Semi-Structured Interviews

The majority of the interviews conducted in this study consisted of a semi-structured form with an emphasis on “ordered but flexible questioning” (Dunn in Hay 2000: 61). Robyn Longhurst refers to Krueger and Casey (2000 xi), who note that semi-structured interviews stress listening. It is important to pay attention and be open to hear what people have to say. If the interviewer maintains a nonjudgmental attitude, he can create a comfortable environment for people to share what they know (In Clifford and Valentine 2003: 118). The semi-structured interview lends itself a certain human component that can often be left out of a structured interview. Although structured interviews may maintain rigor, they can also be interpreted as mechanistic due to their standardized format and the limited room for interaction that the interviewer has with the interviewee. Another component to the semi-structured interview that I found appealing is the flexibility to have a series of questions to draw from throughout the interview process but to also ask questions that are not on the interview questioning list. This allowed me to keep track of the topics covered and the progression of the interview. Finally, it also allowed me to ask further questions to probe for more explanation on important topics.

Unstructured Interviews

A careful and systematic interviewer can introduce the topics they want to cover while allowing the interviewee to expound on their own experience or areas of expertise. Unstructured interviews were used in a few of the interviews conducted in this study and were very helpful in particular circumstances. As pointed out by Kevin Dunn, unstructured interviews are valuable because they can focus on personal observations and personal histories (In Hay 2000: 61). They can uncover information that specific questioning would not elicit. Furthermore, unstructured interviews can provide a greater breadth of data because of the qualitative nature of the interview (Fontana and Frey in Denzin and Lincoln 2000: 652).

Creative Interviewing and Oral and Environmental Histories

One type of unstructured interview - creative interviewing - is especially useful given the dynamics of interviewing in different locations and under different cultural contexts than one would find in a formal, punctual, and orderly western context. The difficulties of
conducting research in locations such as the Caribbean have been discussed at length by Kingsbury and Klak (2005). When cultures and value systems differ, effective communication can depend on the researcher being creative and adapting themselves to the constantly changing situations they face (Fontana and Frey 2000: 657). By incorporating unstructured interviews into research methods it allows the researcher to access a broader array of information than with the structured interview.

A particularly interesting interview method, “Oral environmental histories”, facilitates an approach in which, “Data collected might include peoples’ memories of changes in local land use, biodiversity, hydrology and climate” (Hay 2000: 62). Reinforcing this viewpoint is Baxter and Eyles who state that “In-depth, face-to-face interviews used within a qualitative methodology are useful for expanding knowledge on technological environmental risks and hazards” (1999: 318). As Kevin Dunn affirms, “This type of interviewing helps produce a more comprehensive picture of the cause and process of environmental change than is available through physical methods of enquiry” (In Hay 2000: 62). Oral histories proved to be beneficial to my research efforts because of the backgrounds of the people I interviewed who live in Cozumel. Most of these people had lived on the island for some time and could remember what the island’s environment was like 10 and 20 years ago.

**Positionality**

From the onset of the interview process the researcher is inundated with significant issues, such as positionality, that have the potential to impact the interview process. This is something that I have taken into consideration in my research endeavors given that I am an Anglo-American with limited Spanish skills and much of my experience in Cozumel has been as an American tourist. The research I have conducted is enhanced by interviews and the problems inherent in conducting personal interviews do not outweigh the possible insights that the interviewing process has provided. Mullings noted that her “positionality as a ‘feminized’, ‘radicalized’ subject, did not always exclude me from particular types of information” (1999: 348). Positionality can affect any research endeavor, but the interviewer can overcome some disadvantages by emphasizing listening skills.
Interviewee Demographics

Table 3.1 below illustrates the occupational, national, and demographic attributes of the people I interviewed. It is important to mention that because of the overlap in occupations and demographics, only the far left citizenship column will add up to the total number of interviewees. A discussion below the table outlines the importance of the respective interviewees. Semi-structured, and in some part unstructured, interviews were conducted to elicit each stakeholder’s observation of changes on the island or aquatic environments and reefs since pier construction. These interviews consisted of 21 sessions. Dive masters were helpful because they have an intimate local knowledge of the island’s reefs due to their occupations.

Table 3.1: Interviewee Demographics

<table>
<thead>
<tr>
<th></th>
<th>21 Total Interviews</th>
<th>Business Owners</th>
<th>Divers</th>
<th>Dive Masters</th>
<th>Marine Park Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican Citizens (8)</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>US Citizens living in Cozumel (8)</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Foreign Citizens living in Cozumel (5)</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

They dive on the reefs nearly every day and are able to provide a valuable view of the ecological conditions of the island’s reefs before and after pier construction. National marine park employees provided scientific information on the condition of the reefs and had access to studies and other important information regarding the reefs. Dive tourists and expatriates provided a wealth of information on how they perceive the changes that have taken place on the island since they first began visiting the island. Expatriates and dive tourists have a common concern for the environment of Cozumel. The expatriates, like dive tourists, came here for the ecology, weather and secluded nature of the island. Dive tourists come because of the beautiful reefs. As Polly Pattullo generally points out, “Divers...are
adventurous, relatively wealthy and, most importantly, conscious of the environment” (1996: 173).

Finally, several business owners who were involved in running dive shops, rental properties or other tourist related jobs, such as fishing charters, were incredibly valuable sources of information given their time on the island, their observations of the different ecological conditions of wildlife over time (especially in the case of the fishing charter business owner) and their concern for the sustainability of the economic base of the island, that of tourism. Because Cozumel’s economy is based on tourism, tourist observations of Cozumel’s natural conditions are integral to maintaining the present levels of Cozumel’s tourist development. If tourists perceive Cozumel’s environment to be damaged or ugly, it will significantly undermine the sustainable objectives of the Mexican government through decreased visitation and the resulting decreased revenues. In combination, these interviews provide a varied and insightful look into the environmental histories and environmental imaginaries of Cozumel’s environment.

The Interview Process

Once in Cozumel, I approached potential interviewees on the basis of their occupations. I then contacted them personally, presented them with my credentials and my statement of purpose, as outlined by the Institutional Review Board (IRB), and scheduled a time. In most cases interviewees felt comfortable enough to engage in the interview at the present moment. I would then discuss the research topic in more depth and discuss matters of consent in conducting the interview. To establish a rapport with the interviewees I asked general questions at the beginning and attempted to understand their background a bit more, which proved to be one of the best aspects of the interview process. After acquiring consent I would ask for permission to record the interview.

The core questions I asked interviewees are outlined below:

Core Questions for Expatriates:

1. What did you know about Cozumel prior to moving to the island?
2. Why did you decide to move to Cozumel?
3. How did you picture Cozumel when you were planning to move?
4. What were the primary attributes that convinced you to relocate?
5. What are your clearest memories of Cozumel?
6. How has the island changed since you moved here?
7. How do you currently picture Cozumel?
8. What types of tourists visit Cozumel?
9. In your opinion, why do tourists visit Cozumel?
10. How could life on Cozumel improve?

Core Questions for Dive Tourists:

1. How long have you been visiting Cozumel?
2. What did you know about Cozumel prior to your first visit?
3. How did you picture Cozumel before you visited?
4. Why do you visit Cozumel?
5. What are your clearest memories of Cozumel?
6. How do you picture Cozumel today?
7. How has Cozumel changed since you first visited?
8. What types of tourists visit Cozumel?
9. In your opinion, why do tourists visit Cozumel?
10. How could the tourist experience on Cozumel improve?

Core Questions for Dive Masters:

1. How long have you been working as a dive master in Cozumel?
2. What is the best / worst part of your job?
3. How do you picture Cozumel?
4. What is the most important feature of Cozumel?
5. Why did you become a dive master?
6. What is one of your clearest memories of Cozumel?
7. How has Cozumel changed throughout your time here?
8. When and why was Cozumel’s marine park established?
9. How could life on Cozumel improve?

Core Questions for National Marine Park Employees / Environmental Activists:

1. How long have you worked at the marine park?
2. Why do you work for the marine park?
3. What is the best / worst part of your job?
4. How do you picture Cozumel?
5. When and why was the marine park established?
6. What is one of your clearest memories of Cozumel?
7. How has Cozumel changed throughout your time here?
8. How could the marine park improve?

The interviews derived from these questions were incredibly helpful in obtaining general ideas and sentiments about environmental changes in Cozumel. More importantly
these questions facilitated the information necessary to answer several of my research questions, especially in regard to how tourist development has changed the coastal environment of Cozumel and the way this development has affected Cozumeko’s observations of the coastal environment. While some questions tended to be more engaging than others; this was especially the case for the question asking interviewees how the island has changed over time, nearly all of the questions were beneficial in some respect, even the simple rapport based questions. The interviews that were conducted provide a rich and insightful look into the concerns and observations of tourist development in Cozumel.

One final point is the annotation in which the interviewees are identified throughout the thesis. The interviewees were given a code to indicate their nationality and occupation in order to indicate the positionality of the interviewee while maintaining confidentiality. The first letter of the code is the nationality of the interviewee and the second series of letters will be the occupation or activities that the interviewee is associated with. The last number indicates the sequential order in which similar codes occurred throughout the interviewing process. A table of the code components and an example is listed below.

<table>
<thead>
<tr>
<th>Nationality</th>
<th>Occupation / Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>E = Expatriate – US Citizen</td>
<td>BO = Business Owner</td>
</tr>
<tr>
<td>M = Mexican</td>
<td>D = Diver</td>
</tr>
<tr>
<td>F = Foreign National</td>
<td>DM = Dive Master</td>
</tr>
<tr>
<td>MP = Marine Park Employee</td>
<td></td>
</tr>
</tbody>
</table>

Example: E - BOD – 2 = Expatriate, Business Owner and Diver, Second of the Same Interviewee Type

This coding method will provide the reader with a more nuanced understanding of the varied stakeholders involved in this thesis and a hint as to the reasons why they have the observations they do.

**Remote Sensing**

For this portion of the study, I employ remote sensing images to analyze land cover change as a result of tourist development. Using a Landsat TM image of Cozumel from 1988 with a recent image from 2001 it is possible to examine the increase in infrastructural
development that has taken place on Cozumel. This development has changed the physical landscape of the island from an eco-tourism locale, to a mass tourism cruise ship destination. In addition, I point out increased development in coastal areas and how this may be adversely affecting the coastal environment. Through construction, tourist development contributes to sediment runoff which reduces the sunlight that is necessary for the growth of coral. Coastal mangrove destruction is caused by the mixing of concrete in construction projects and increased nutrient runoff from inadequate sewage disposal and landscape fertilization (Potter et al. 2004, Goodbody and Thomas-Hope 2002). Landsat satellites have seven bands, four of which allow for water body penetration (Lillesand et al. 2004). This capability aids in coastal mapping of coral reefs at shallow depths (Knight et al. 1997). However, due to the depths of some of Cozumel’s reefs, this study will not incorporate this procedure. Through remotely sensed images I will answer the 3rd and 4th sub-questions under my primary research question by comparing changes in land-cover from 1988 to 2001. These questions are:

3) How has tourist development changed the physical landscape of Cozumel?

4) Are stakeholders’ observations of environmental change consistent with the physical changes in the landscape?

Image Acquisition

The images I acquired are Landsat TM (Thematic Mapper) and Landsat ETM+ (Enhanced Thematic Mapper) images of Cozumel. There are two reasons for the selection of these types of remote sensing images. The first is cost; there are websites that have Landsat remotely sensed images available for free; and the second reason for choosing this data medium is the accessibility of Landsat images. Landsat satellites follow a sun-synchronous orbit around the Earth. The temporal cycles, or temporal resolution, for the same location in a Landsat images is 16 days. The spatial resolution of the pixel size in an image taken in a Landsat images is 30 meters and the availability and access to Landsat images make them an enticing option for land use analysis (Lillesand et al 2004). The spatial and spectral resolution for all bands of these sensors can be seen in Table 3.3. For this study, I began by searching for and downloading images from the University of Maryland’s remote sensing website (http://glcf.umd.edu/data/landsat/).
I found path and row coordinates for the area of my image and then searched the database for possible images. After I found available images, I proceeded to preview the images available for cloud cover. Because of the location of Cozumel, which is situated within the tropics, remotely sensed images from this region tend to have a significant amount of cloud cover in them depending on the time of the year the image was acquired. Therefore, I looked for images that were taken in the fall, winter, or spring, to reduce the likelihood of increased cloud cover or haze during the summer, because remotely sensed images are, to some degree, always affected by atmospheric conditions (Lillesand et al 2004). I also looked for multitemporal scenes prior to the construction of cruise piers on the island and one of the most recent, clear images of the island.

Eventually I found a Landsat TM image from the 13th of April in 1988 with virtually no cloud cover over the island of Cozumel and a Landsat ETM image from the 17th of April in 2001 with a small amount of cloud cover that is located directly over the town of San Miguel, the island's largest town. The similar time of year for the acquisition of each of the images is important to ensure similar vegetation patterns and minimal cloud cover. This search provided me with Geo Tiff (Georeferenced Tag Image File Format) images that are compatible with ERDAS Imagine software and are geographically referenced by spatial coordinates. These images met the criteria I set out to find, regarding minimal cloud cover and similar temporal periods, and they are from multitemporal time periods in which the images were taken prior to pier construction and within recent years. In another study performed by Song et al. (2001) the authors used a similar multi-temporal land cover change
analysis of a cloudy area to investigate the need for atmospheric correction. They found that a simple dark object subtraction of hazy or cloudy areas worked best when compared to other more complex algorithms, thus negating the need to use more complex algorithms when classifying hazy land cover images. Once I had the images downloaded as Geo Tiff images, I had to convert them to a format that ERDAS Imagine would recognize. Using the Import tool within ERDAS, I converted both of the Geo Tiff images from 1988 and 2001 into Imagine files. Once the files were imported and consolidated, it was possible to begin conducting a visual interpretation of the two images.

**Visual Interpretation**

Visual interpretation is the process in which the viewer analyzes a remotely sensed image and interprets land cover features based on their “shape, size, pattern, tone (or hue), texture, shadows, site, association, and resolution” (Lillesand et al 2004 quoting Olson 1960: 195). The image from the year 1988, (in figure 3.1) shows only one of the cruise piers that was built south of San Miguel. This is labeled by the red rectangle. While the image does have cloud cover, it is not located over the island, which allows a clear view of the town of San Miguel which will allow for urban land cover classification. The only clouds to cover the island are inside the orange square just north of the “transversal” or the road that connects both sides of the island. For the image from 2001 in figure 3.2, various developmental features are illuminated. First of all, there are two more cruise ship piers that have been built. One of these has been built next to the pier mentioned earlier, which is located within the red rectangle, and another has been built adjacent to the shore of the town of San Miguel. Another tourist feature is the increased hotel development and the new golf course located in the north of the island which is boxed in by a yellow rectangle. However, there is a significant amount of clouds over the town of San Miguel, which is indicated by the orange rectangle. These proved to be problematic for classifying the urban features of this image. One of the best ways to deal with this problematic feature is to create a mask that obscures those digital number (DN) values.

However, Song et al. 2001 found that “[o]ur results showed that it is unnecessary to correct atmospheric effects prior to image classification if the spectral signatures characterizing the desired classes are derived from the image to be classified. This result
extends to the situations in which multivariate classification is used in change detection and the multivariate signatures of classes are derived from the images to be used in the multivariate classification” (241). Finally, in figure 3.3, I experimented with a false color composite, which highlights the areas of different vegetation on Cozumel, such as coastal mangroves and lagoons that have high vegetation reflectance values.
Figure 3.2: 2001 Landsat ETM natural color composite of Cozumel
Image Pre-Processing:

Having identified the primary types of land cover through the collection of ground control points during field work in June of 2005, I started to preprocess the images. To make the 1988 TM image compatible with the 2001 ETM image for land cover change analysis, it was necessary to run a conversion model that modified Landsat TM digital numbers to Landsat ETM digital numbers. Once the 1988 image was compatible with the 2001 image, it was necessary to correct for atmospheric haze in the 2001 image. Although both images were acquired in April of 1988 and 2001, the haze in the 2001 image was significantly more abundant than in the 1988 image. To correct for this, a dark object
subtraction model was applied to the image to lower the effect the haze had on the image. Song et al (2001: 231) note that “[d]ark object subtraction (DOS) is perhaps the simplest yet most widely used image-based absolute atmospheric correction approach for classification and change detection applications”. Once these preprocessing steps were finished, I continued to make the images more manageable.

The final step of pre-processing consisted of creating separate images by using an area of interest selection of the island of Cozumel. This facilitated a faster rate of processing for classification and allowed me to cut out some of the clouds that were in the 2001 image. I then collected several points on each map and examined the histograms of each. I found that nearly every type of land cover had a peak within the 5th mid infrared band. Therefore, I decided to create a subset image of the previous AOI image that only contained bands 5, 3, and 1. This allowed for a more discerning calculation of vegetation land cover types between the forested areas, mangrove areas and urban areas of Cozumel.

**Land Cover and Land Cover Change Classification:**

I began classifying the 1988 image of Cozumel first. I set out to distinguish 10 different land cover types in the final land cover classification. These consist of Urban, Barren Land, Forest, Cleared Forest, Forest Regrowth, Mangrove, Shallow Water, Moderately Deep Water, Deep Water and Lagoons. I initially ran an unsupervised classification of the 1988 image with an output of 20 classes. Once I had the unsupervised classification of the predominant land cover types I proceeded to examine each of the classes the unsupervised classification process gave me. In this process, “[t]he analyst must compare the classified data with some form of reference data (such as larger scale imagery or maps) to determine the identity and informational value of the spectral classes” (Lillesand et al 2004: 573). Referencing these classes with the ground control points I collected while in Cozumel, along with maps of the island, I then labeled them as each of the primary land cover types. When I had each of them labeled, I merged similar land cover type classes in the signature editor. Using the modified signature file in ERDAS Imagine, I ran a supervised classification of the merged classes. When the supervised classification was finished I had 10 classes that were representative of the land cover in Cozumel. To add the finishing touches, I incorporated the supervised classification of Cozumel into Arc View 9 so
I could modify the class colors and incorporate map features like legends, scales and compass roses.

After I finished classifying the 1988 image, I moved on to the 2001 image. For this image I followed the same procedure as I did in the 1988 image. I ran an unsupervised classification of the 2001 image, modifying its signature file by merging the similar classes, and then ran a supervised classification using the merged signature file with the ten desired classes. Once the supervised classification was complete I sent the image to Arc View 9 to make the necessary modifications.

For the final portion of the land cover classification, I ran a land cover change detection of the two images. This took the 1988 and 2001 image and determined which pixels changed over time in an attempt to determine which spatial areas changed the most over 13 years. Using the utilities function in ERDAS imagine and the change detection option, I used the two classified images from 1988 and 2001 and created a change detection map from the two images.

**Closing Comments**

Despite methodological arguments centering on the utility of mixed method analyses of environmental problems, my hope is that this methodological overview presents a clear, worthwhile discussion and validation of the utility of mixed method studies. The use of both perceptual techniques, biological and remotely sensed, does not complicate this study or render it incoherent, but contribute to it by including another scale of analysis. Integration of methods for analyzing environmental conditions contribute to the growing body of literature that is utilizing this model of investigation to document and analyze the environmental dilemmas of our time.
Chapter 4

OBSERVATIONS OF COZUMEL’S TERRESTRIAL ENVIRONMENT

This island had its chance…has its shot… to become one of the best. And the reason it did not, it’s not because opportunity did not exist. It’s not because we have a hurricane every month that destroys everything and we have to start all over again. It’s because there is a certain group of people and these people, mainly from here in Cozumel, who will not allow it to happen. Because their mind, their ideas of development is mainly motivated by the greed of the money and not by the welfare of all the people.

(F-BOD-1)

Introduction

The quote above is just one example of a particular observation that identified a common concern for many of the interviewees surveyed in this study. While many different societal and environmental concerns were raised throughout the interview process of this study, this chapter will argue that the societal and environmental observations of Cozumelinos indicate an adverse change in the way they view the societal and environmental impacts of tourist development on the island. Current observations, many of which indicate that interviewees are skeptical of the development practices utilized by public and private entities, not only highlight a concern for the way in which tourist development has operated in the past, but reveal a populace who are curious as to who and what is benefiting from the recent increase in tourist development. In addition, this chapter will incorporate these observations into the regional ambit of coastal tourist studies in an attempt to contribute to a variety of calls within geography to examine marine and coastal based tourism phenomena (Nichols 1999, Trist 1999). While many studies have examined the political and economic components of tourism within Mexico (see Brenner and Aguilar 2002, Clancy 2001) this chapter will examine the place specific components of coastal tourist development on Cozumel. With a focus on the societal and ecological concerns of the island, this chapter argues that Cozumel is not simply influenced by the larger, external political and economic tourist development forces that assert their power on the island, but held hostage by them. As external tourist development forces, such as the state and transnational firms, play more of a role in local development, local stakeholders are
increasingly limited in their ability to plan the ways in which they can develop their tourism economy and infrastructure. In addition, protection of natural resources that local stakeholder’s value are becoming influenced and ultimately decided by the state and transnational corporations rather than local officials. These examples serve to further support Carolyn Trist’s conclusion that “As new forms of recreational consumption of the tropical marine environment have developed, coastal communities have been brought into new social and economic relationships with a global tourism industry, relationships that are mediated by contesting representations of marine space” (1999: 385).

A general overview of the political ecology of the island outlines the key environmental concerns brought about by tourist development and describes the urban political ecological concerns of the people interviewed in San Miguel, Cozumel. By setting out to encompass these varied observations of tourist development, this study will investigate environmental problems occurring at varied scales, as well as in urban and protected areas within political ecology case studies as called for by Zimmerer and Bassett (2003), among others.

**Overview of the Political Ecology of Cozumel**

The development of cruise ship piers and the economic stimulus that this development has provided on the island of Cozumel is in direct opposition to the ecological interests of those concerned with Cozumel’s primary tourist lure, the reefs. Recent events have thrust the island of Cozumel onto the global media scene, primarily in reference to the controversy over the construction of a cruise ship pier on top of Paradise reef in 1990. The initial tourist demographic that first began to visit the island in the 1960’s consisted primarily of eco-tourists and divers. The cruise tourists that have come to dominate tourist arrivals on the island today are a direct result of pier construction on the island (Preston 1996). Conflicting societal agendas are evidenced by media reports, the interactions between the various stakeholders on the island and the varying degrees of affluence and status that these stakeholders attain. The stakeholders who benefit the most from this development are the businessmen and individuals directly involved in the construction of the pier and associated facilities.
More specifically these stakeholders consist of owners and employees of the Mexican construction firm Consorcio H, and those stakeholders operating the newly opened businesses that cater to cruise ship tourists.

The construction of new cruise ship piers more than tripled the capacity of cruise ships visiting the island from 418 cruise ships in 1990 to 1,302 in 2004, which can be seen in figure 4.1 above. While some low paying and low skill level jobs were created on the island, the influx of people from the Yucatan mainland seeking jobs made finding gainful employment more difficult for Cozumelinos, which as Brenner and Aguilar point out, is a trend throughout Mexico (2002: 515). From 1970 to 1995 the population of Cozumel jumped from 5,900 to 48,400; over eight times the island’s previous population (Brenner and Aguilar 2002: 516). Today Cozumel hosts a population of roughly 75,000 people (Isla Cozumel website), illustrating another significant rise in the amount of people moving to the island to find work in the island’s tourist service sector.
Figure 4.2: 1988 Landsat TM natural color composite of San Miguel

Figure 4.3: 2001 Landsat ETM natural color composite of San Miguel
Through remote sensing it is possible to see that this increase in population has resulted in the expansion of San Miguel’s urban area from a perimeter of 6.29 miles in 1988 to 8.71 miles in 2001 and a change in area from 2.09 miles\(^2\) to 3.25 miles\(^2\) (See figures 4.2 and 4.3 above). These images illustrate how the increased tourist development on the island of Cozumel has lured people from the mainland to the island of Cozumel, which has resulted in an increase of San Miguel’s urban area effectively altering the physical landscape of Cozumel from forested areas to urban, residential areas.

Most of the urban extension of San Miguel has occurred on the inland side of San Miguel to the south. Unfortunately, while development had renovated much of the coastal businesses and areas near the cruise ship piers, the renovation has largely failed to trickle down to the resident population’s homes in these new areas “where many homes lack adequate floors and permanent roofs” (Brenner and Aguilar 2002: 516). One study by Weaver (2003) in another Caribbean location notes that in the Cayman Islands cruise ship visitation rates high in the amount of people that visit the location, but low in the amount those visitors spend. Reiner Jaakson also mentions a couple of studies that have examined the economic effects of cruise tourism on ports of call. He notes how,

Tourist expenditures were shown to be lower than what had been estimated and if one includes economic leakage and social and environmental costs, the economic benefits from Cruiseship visits are modest. Wilkinson found that compared to stayover tourists in the Bahamas ‘cruise ship visitors have little potential economic impact’ (1999: 269)

(Jaakson 2004: 46).

The entire developmental notion that more tourists equal more money is increasingly questioned by authors such as David Weaver (2003). In turn this compounds the tourist development problems because the minimal economic benefits that are accrued by the few are attained at the expense of the entire island’s environment. This would appear to delegitimize the economic observation of government planning officials that highlights the possible economic benefits facilitated by cruise ship tourists.
The Socioeconomic Stratification of San Miguel

San Miguel's largest town is San Miguel. Originally a Mayan fishing village, today vendors sell pictures of Cozumel’s waterfront in the early 1900’s when all the structures were made out of wooden and thatch “palapas” (Mayan huts), which were the predominant housing type on the island. Prior to the tourist economy there was only one small wooden pier for the channel ferry boats. All of this has changed after Jacques Cousteau filmed a documentary on the island’s beautiful reefs in the 1960s. This resulted in divers coming to the island in ever increasing numbers. Dive shops, restaurants, hotels and stores were built throughout San Miguel to facilitate the incoming diver clientele. Divers were welcomed to Cozumel because they contributed to the local economy.

In 1971 Cozumel built its first cruise ship pier, the International pier, to the south of San Miguel (a map of the International Pier and San Miguel can be seen below in figure 4.4).

![Map of Downtown San Miguel and Cruise Ship Piers](www.frankomaps.com)
This facilitated an increase in the global connections of the island by changing the tourist demographic on the island, creating more jobs and facilitating economic growth. One interviewee, in reference to the first cruise pier, said, “I got here in 78 the original pier was already done. I think people welcomed it. We’d get about three ships a week. And nobody thought much about it” (M-BO,DM-1). Increased amounts of cruise ships began visiting the island due to the construction of the Puerta Maya in the late 1990s and Punta Langosta’s pier and duty-free mall complex. The waterfront of San Miguel underwent a major transformation. These infrastructure projects and the political economic policies that accompanied them initiated the change in Cozumel’s coastal areas. More tourist and cruise ship related businesses, such as hotels, jewelry shops, and other foreign owned restaurants and bars began purchasing property and stores along the waterfront pushing dive shops and other locally owned businesses away from the waterfront. The results of this transformation can be seen in the map of San Miguel below in figure 4.5, where the majority of the dive shops labeled are not on the waterfront, but in the backstreets of San Miguel. The aforementioned interviewee notes the distinction between the waterfront years ago as compared to today.

The whole waterfront used to be a diversified shopping area and now it is what 90% or more jewelry store? It’s certainly over 80. They’re always bugging me about renting this space here and I can put the dive shop in the back. They want to be on the waterfront they want to get the locale before their competition does. (M-BO,DM-1)

Given the interest expressed by jewelry stores for waterfront locations it is clear that the competition amongst jewelry stores along Cozumel’s waterfront is highly active. A photograph of the waterfront in San Miguel can be seen in figure 4.6 in which three jewelry stores are located within a block of one another. Polly Patullo captures this typical Caribbean cruise ship port setting well.

The most popular ports of call are the ones with the best duty-free shopping and casinos. The shops are ice-cold and could be on Fifth Avenue: the gifts, under glass, are much the same whether in Ocho Rios or Antigua – jewelry, perfumes, china figurines of pastel-coloured cottages, milk maids or puppies. Each destination, however is in competition with the next to provide a shoppers’ paradise.

(Pattulo 1996: 157)
Although there is some distinction in the products offered in the shops of Cozumel, the general setting is the same.
Jewelry stores dominate the waterfront with employees beckoning tourists to come in from the heat and check out the prices they have “just for you” while “authentic” Mexican craft stores replete with the standard assortment of tourist themed T-shirts compete with American fast food chains, small restaurants and specialty stores featuring Cuban cigars.

A Cruiseship port case study by Jaakson (2004) used the “tourist bubble” unit of analysis. In Jaakson’s case study of Zihuatanejo, Mexico he found that “Passengers appear to be highly sensitive to distance and the majority are willing to walk no more than about 200 meters from the beachfront promenade” (2004: 54). What causes this proximity phenomenon has not been directly proven, but fear perpetuated by Cruiseship event coordinators may play a role as one interviewee explains,

The ships tell you when you get on the ship, OK we’ll take care of you we’re going to make sure you have a safe vacation but you know we’re going to these foreign countries and everything and you need to be careful and listen to us. And when you get off in Cozumel don’t you dare go off of that main street because it’s very dangerous once you get back there and if you go off the main street and something happens to you we can’t be responsible.

(E-BO,D-1)
The situation has become so dire for local businesspeople that in the summer of 2004 Cozumel businesspeople hired a lawyer to counter the promotional efforts of cruise ships to direct cruise ship tourists into sponsored companies.

The ship promoters and agents spread negative information about competitors and the island itself, propagating information that suggests that it’s dangerous to venture off the main avenue. Their plan is to channel pedestrian tourists to the businesses that these agents promote. In addition, they put out false information about sanitary and hygienic conditions in local businesses and restaurants.

(The Cozumel News in English: Volume 11)

The irony of this circumstance is that several of the interviewees noted that one of the island’s most redeeming cultural qualities that lured them to the island was Cozumelinos “amabilidad”, or kindness. For instance one interviewee explained that

What I loved about Cozumel was the Yucatecan, amabilidad...people were kind, people were really sweet and kind. People were really nice. But it’s changed a lot, people from many, many different parts of the Republic have moved here and it’s lost that Yucatecan quality, of amabilidad that I appreciate. To me it’s all but gone. Of course I’m not complaining I can go spend a week in Mexico City come back and be grateful.

(M-BO,DM-1)

With a noticeable tourist bubble itself, it appears as though the largest jewelry stores in Cozumel with their economies of scale are competing with other locally owned businesses within the “tourist bubble” and effectively pushing them out of the most prominent locations.

While two out of the three Cruiseship piers (The International Pier and Puerta Maya) are further than 200 meters away from San Miguel, Cruiseship tourists typically take a short taxi ride to the town of San Miguel to, as Cohen mentions, “experience the novelty of the macroenvironment of a strange place from the security of a familiar microenvironment” (1972: 166). This microenvironment of Avenida Rafael Melgar, or the malecón, receives the most attention and is prioritized when it comes to funding for social projects. Furthermore, this microenvironment of the malecón is often a space of exclusion for many Cozumelinos.
Many of the hotels along the malecón have sprung up since the 1980s (see figures 5.7 and 5.8 in chapter 5 to examine the increase in hotel and tourist construction to the south and north of San Miguel). These hotels exclude Cozumelinos from their beachfront areas, despite the fact that there is a law in the Mexican constitution that entitles every citizen the right to access any beach in Mexico. This is just one of the numerous contentions that Cozumelinos have with the increased tourist development. However, while there may be a law allowing equal access to public areas, there is no law permitting equal access to government funding.

One glaring instance of this is the main coastal road, Avenida Rafael Melgar. It was renovated recently using community funds and the taxes of businesses located along the malecón. This renovation of the malecón coupled with the recently built Punta Langosta pier complex, which includes a mall, restaurants and bars like Carlos and Charlie’s and Señor Frogs, presents a modern globalized space of consumption for disembarking Cruise ship tourists, which can be seen below in figure 4.7.

![Figure 4.7: Punta Langosta Mall. Photo by author 2005.](image-url)
Duty free stores, American restaurants such as T.G.I. Fridays, and American retail stores like The Gap are just a few of the stores within the Punta Langosta mall complex. Tourist spaces such as these epitomize the growing conceptual entity of “Gringolandia” that Torres and Momsen have recently investigated (2005). Gringolandia, as Torres and Momsen note, “implies the invasion and expropriation of Mexican space by American place” or “a dynamic ‘hybrid-space’ in which elements of Mexican, American, and artificial Maya culture have been reconstituted for tourist consumption” (2005: 314). While many places throughout the Mexican Riviera are beginning to emulate this conceptualization, “Gringolandia” is most recognizable in the more established locations of the Mayan Riviera, such as Cancun, Cozumel, Playa del Carmen and Chetumal. In line with this concept, Jaakson keenly notes, “It is a tourist façade that the port presents to passengers” along with some functional services San Miguel also provides local inhabitants (2004: 48). One interviewee explains how this phenomena plays out in Cozumel by noting that,

That’s the problem, the improvements that you see that I speak of have really been cosmetic in nature to make the island look prettier and nicer up here in the tourist zone and that’s the sad fact, is that that money is being all deployed up here where it’s visible to the tourists but go back into the real part of town and look at the drainage on the street and look at the potholes and look at the fact that the roads are in terrible disrepair and there are no stop signs.

(E-BO,D-1)

This point sheds light on the fact that the non-tourist, non-expatriate community areas of San Miguel have a very different socio-economic context attached to their location. These areas are devoid of shiny, modern spaces and are largely neglected when it comes to governmental and private infrastructural improvements (see figure 4.8). Many houses in the backstreets of San Miguel are partially built with rebar sticking out of the top of houses and concrete sitting on the sidewalks, structural indicators of an economy that has failed to trickle down to the people who provide visiting tourists with many of the services they require (See figure 4.9 below).
Figure 4.8: Vacant lot with disposed building materials. Photo by author 2005.

Figure 4.9: Abandoned lot with rebar structural posts exposed. Photo by author 2005.
While some houses are just idling in the midst of construction until the homeowner can afford to add an addition to their house, others that are partially built have been abandoned for financial reasons. Sometimes these abandoned, partially built homes become inhabited by homeless people who have moved to Cozumel but cannot find jobs. The roads and sewers for drainage in the peripheral areas of San Miguel are poorly-designed and constructed, which results in drainage problems after rain storms that create ponds near intersections. The combination of these features makes for a peripheral urban environment that is very different from the core tourist strip of Avenida Melgar or the malecón. Despite the numerous issues identified by interviewees, there are two primary urban ecological concerns in San Miguel, garbage disposal and fresh water resources.

**Interviewee Concerns of San Miguel's Urban Environment**

This portion will address some of the negative features of tourist development that interviewees have pointed out in regard to the environment. The first of these that I will mention is the concern about garbage disposal on the island.

![Figure 4.10: Trash pile alongside a road. Photo by author 2005.](image)
Many of the interviewees have noted their concern for garbage disposal on the island, primarily in regard to individual disposal habits. Cozumel has a garbage disposal system and an island dump near the center of the island. Despite the fact that there is no formal community recycling program on Cozumel, people independently pick up garbage that can be returned for money, such as aluminum cans or bottles, that can be returned for their deposit. However, garbage oftentimes ends up on the roadsides and other public places and not in proper receptacles. Currently, there is a public awareness campaign to promote the disposal of personal garbage properly, but many roadside locations on the island are used as garbage repositories (see figure 4.10). While many expatriates viewed this behavior as a lack of effort on the part of the government to promote education about the merits of garbage disposal, one expatriate had a different view that shed some contextual light on the issue.

I have a little theory about that, which as more people come from other places doesn’t necessarily hold true, but this area is like the last frontier in Mexico and so even 50 years ago, I mean my husband’s only 40 years old and he can remember when hammocks were made out of henequen, which is a fiber made from a plant here, and he can remember dirt floors in houses so you figure even thirty years ago everything that they bought or used was biodegradable. You’re talking about a hammock that you could throw out and it would rot. They didn’t have “Sabritas” which are the little bags of chips. They didn’t have garbage that didn’t decay. So my opinion is just because everything that they owned mostly was biodegradable there wasn’t the need to be so conscious about where you put garbage.

(E-D-2)

Despite the intriguing and probable merit that this explanation holds, the fact remains that the island has a waste disposal problem. One of the interviewees mentioned that even though the garbage dump was located at the center of the island and that it alternated layers of garbage with soil, they were still concerned about the island’s water quality noting how, “the problem is that when it rains the water goes down to the well and we drink that water” (M-DM-1). Therefore, there remains a possibility that any toxic or hazardous materials placed in the island’s dump could have the potential to leak into aquifers, via Cozumel’s porous limestone geology, and contaminate the island’s groundwater reserves and other habitats. The same interviewee mentioned a potential scenario that could potentially transport contaminants from landfills to the coral reefs.
Another thing that we have here in Cozumel are the underground channels. So the water, those tunnels, end up going to the ocean. Like if you were to go to “Calitita”, there’s a beach right here that has got an exit of one of those cenotes, which is an underground river. So everything that goes from the ground to the water will end up going to the ocean. And the more pollution you have on top, any part of the island, will affect that. Even though we have current and they clear it up in a day or two, but of course that pollution will go somewhere else, right? And there are some corals that cannot stand it and they will die, the ones that are closer to shore.

While point source pollution from the island’s dump is a concern, there is also a significant amount of concern amongst residents for non-point source pollution from empty lots that are used as dumping grounds for people who dump illegally (E-BOD-1, E-D-1). The potential for ecological disturbances are very concerning given the very real possibility of the transportation of contaminants via underground fresh water sources on the island.

Another concern amongst Cozumelenses is the fact that the island of Cozumel has limited freshwater resources. One should find it intriguing, then, to know that Cozumel’s public water authority recently announced that,

La Comisión de Agua Potable y Alcantarillado (CAPA) has enough capacity to take care of the demand for this vital liquid in the face of future population growth according to Ernesto Vivas Anduze, manager of the water company. At present there are 246 drilled wells but only 145 are currently being utilized because the 14 thousand cubic meters of water per second now being supplied to the city is sufficient to fulfill the request of the 12,350 users.

The interesting fact is that while this commentary does account for the island’s fresh water customers, the report does not mention the likelihood that the island could also provide water needs for the millions of tourists visiting the island within a year. This is a significant concern when one considers that the population, as mentioned earlier, is roughly 75,000 people. However, the amount of stay-over tourists for 2003 was 304,233 while cruise ship arrivals were 2,708,913 (World Travel and Tourism Council 2004). It would seem, therefore, that the actual amount of water available to the island is in some respects a guessing game that incorporates a variable, namely tourists, that has the potential to fluctuate wildly. One
An interesting feature when comparing the land cover maps in this study are the increase in the number of water well roads along the transversal in figures 5.7 and 5.8 in chapter 5. This illustrates the increased demand for water on the island since the 1980s. While the increased infrastructure is probably not much different from any other location, it does suggest that tourist development is requiring an increase in freshwater extraction to facilitate the tourist economy.

Fresh water use in other tourist locations has been examined by authors such as Susan Stonich in the Bay Islands of Honduras. She has pointed out a marked increase in fresh water use with the increase of tourist development. One of the primary reasons for fresh water depletion that Stonich notes is the number of showers or baths that tourist’s take in comparison to local inhabitants, which in the Bay Islands stood at a ratio of 3 to 1 respectively. In addition, Stonich notes that the quality of the water tourists receive is likely to be safer due to the fact that tourist hotels do not want to loose business, and therefore provide either bottled water or pay for an on site water purifier (Stonich 1998). While there are some significant geographical differences between the Bay Islands and Cozumel, Stonich notes a significant amount of deforestation that has taken place in the Bay Islands, the fact remains that the conservation of fresh-water resources should be a top conservation agenda for Cozumel. However, in an attempt to modernize and provide consistent services to the citizens of Cozumel, an interviewee noted that access to water was in some ways better now than in times past.
One improvement that we’ve seen this last year was the city water supply. For years and years they would only release water to various regions of the city four hours at a time. So you had to capture your water in a storage facility and then pump it up to your roof whenever you needed it. It wasn’t like a gravity fed water system. And finally this past year they’ve gone completely on-line throughout the city with water in the pipes at all times. Now, how long are they going to be able to maintain that? No one knows; but no one wants to do away with their underground cisterna systems and their pump systems for fear that one day the city’s going to go “well, you know what we can’t keep water in all the pipes anymore, we’re going to go back to the old system.

(E-BOD-1)

The key concern, as the interviewees have pointed out, is the duration and quality in which CAPA can provide fresh water to the entire island.

**Conclusion**

The implications of tourist development upon Cozumel’s urban areas are apparent in numerous areas. The societal stratification of San Miguel is evident in the shifting storefronts and the dichotomous living conditions that exist between those staying in tourist areas and those areas that are inhabited by Cozumeleños. Previously public places, such as hotel beachfronts, have now become off-limits to everyone except hotel patrons. Storefront areas once leased by local merchants are now owned by transnational jewelry stores and restaurant chains. Quite possibly the most disturbing facet of this societal transition, however, is that while tourist areas are continually remodeled and aesthetically enhanced with the most modern conveniences, many Cozumeleños live without common household utilities like electricity, adequate shelter and running water. These glaring differences in stakeholder’s qualities of life have adversely affected Cozumeleños observations of the social fabric of the island.

When these societal concerns are coupled with the environmental concerns taking place on the island, it leads many Cozumeleños to question who tourist development is for, who their island’s natural resources are for and whether or not they will ever be beneficiaries of tourism initiatives. Given the demonstrative effects of tourist development to date, it becomes clear that the global economic forces involved with tourist development on the island of Cozumel have no concern for either the societal or environmental conditions of
the island. These corporations are merely concerned with expanding their markets into new lucrative areas, an argument that will be revisited in the following chapter.
Chapter 5

OBSERVATIONS OF COZUMEL’S COASTAL AND AQUATIC ENVIRONMENT

Introduction

This chapter focuses on the coastal and aquatic environmental concerns brought to light by the observations of Cozumeleños and remotely sensed images. In keeping with the previous chapter’s argument, this chapter will use Cozumeleños observations of the environment and remote sensing to highlight how Cozumel’s physical environment has been compromised at the expense of facilitating economic growth through transnational tourist development. I begin with a discussion of the various classifications of marine parks within Mexico to better understand the functional frameworks and agendas of each type. A discussion of one of the most contentious tourist development initiatives in Cozumel, the Cozumel Pier Case, follows. Additional tourist development along Cozumel’s coast will then be examined through the use of remotely sensed images. The chapter will then focus on issues surrounding the marine park and the challenges it faces in regard to conservation efforts along with their interactions with other marine park stakeholders. Environmental concerns within the marine park will then be discussed and integrated into the key concerns of most interviewees; that of the jeopardized condition of Cozumel’s reefs due to the construction of cruise ship piers. Finally, the chapter will close with a brief discussion of recent events in Cozumel and how they have the potential to further strain the island’s limited resources.

Mexico’s Marine Protected Areas: Contentious Conservation Areas

Mexico utilizes a nation-wide coastal management program, yet “one of the greatest challenges facing coastal managers is how to integrate tourism development within the ambit of coastal management, and thus increase the likelihood of long-term sustainability of the coast as a whole” (Hall 2001). In their study of coastal management approaches in Mexico, Rivera-Arriaga and Villalobos (2001) provide an extensive overview of the coastal management practices currently used by the Mexican government and the ways in which
Mexican management efforts have fallen short of desired outcomes. They begin by explaining the history of coastal management in Mexico and point out that “since the Salinas’ administration, environmental issues have been placed inside the political agenda of the Mexican government” (Rivera-Arriaga and Villalobos 2001) thus illustrating the concept of a “politicized environment” (Bryant and Bailey 1997) in Mexico. Since that time, coastal management in Mexico has fallen under the “Office for the Management of the Federal coastal and Maritime Zones (ZOFEMAT)” that is within the Ministry of the Environment and Natural Resources or SEMARNAP (Rivera-Arriaga and Villalobos 2001). The three policy approaches that Rivera-Arriaga and Villalobos mention consist of agency leadership, protected areas, and land ordinance.

The first of these approaches, agency leadership, utilizes a top-down approach and attempts to grant “the sustainable use of the natural coastal resources, as well as enforces the public trustee doctrine for all Mexican people” (Rivera-Arriaga and Villalobos 2001). Within this approach is the Programa Especial de Aprovechamiento Sustentable de las Playas, la Zona Federal Maritimo Terrestre y los Terrenon Ganados al Mar 1996-2000, or simply (PEAS). This program “acknowledges the necessity to integrate all levels of government, public, and private sectors, and academics in the implementation and enforcement of legal instruments that will enhance the sustainable administration process of the coastal and marine resources and environments” (Rivera-Arriaga and Villalobos 2001). Although this approach suggests that it is very functional and effective, in reality it is not. The agency leadership approach is riddled with pragmatic problems; the most pressing of these consist of dealing with insufficient funding for the monitoring and enforcement of coastal areas. The general lack of political influence and political neglect inherent in areas with a small population is also an issue. Finally, the small fines for coastal pollution offenses do little to deter potential violators of environmental laws (Rivera-Arriaga and Villalobos 2001).

The Protected Areas approach “seeks the conservation and the sustainable use of biodiversity within the Natural Protected Areas (NPA)” (Rivera-Arriaga and Villalobos 2001). The objective of this approach is to establish protected areas and then geographically divide them into zones of use for different stakeholders. For instance, the reefs of Cozumel are part of a national marine park that is segmented into different use zones that allow for
different activities to take place within particular geographic areas (see figure 5.5 below). The different use areas attempt to reduce potential arguments over public natural resources by designating areas for “the exploitation of certain natural resources, the conduct of scientific research, or the implementation of educational programs” (Rivera-Arriaga and Villalobos 2001). The three primary use areas within Cozumel’s marine park are divided into zones, which can be seen below in figure 5.5. The first of these, illustrated in the map of Cozumel’s national marine park, is the restricted zone. The second of these zones is designated as a low intensity use zone. Finally, the third zone is an intensive use area. While funding for the conservation of these areas is tight, the fees for accessing the protected areas pay for some of the cost. One problem within Mexico’s protected areas is the conflict over the use of ejido communal lands (Rivera-Arriaga and Villalobos 2001).

The last approach is the Ecological Land Ordinance (ELO), which is “a planning tool to guide managers and policy makers through the processes of community participation, public consensus, and conflict settlement in order to establish protection, conservation, restoration, and exploitation policies in the short and long run to achieve sustainable development” (Rivera-Arriaga and Villalobos 2001).

Figure 5.1: Environmental Land Ordinance
Source: (Rivera-Arriaga et al. 1998)
While this management method has been utilized since the 1970’s it was not mandatory until 1992. The way in which ELO’s operate can be seen in figure 5.1 above. As the diagram illustrates, ELO’s operate in conjunction with various societal sectors, but the planning of projects and designation of coastal zones is usually done within a state, creating fragmented sectors that are not integrated with surrounding states. Rivera-Arriaga and Villalobos suggest “small-scale management programs” that can evolve into large-scale integrated coastal management plans “tailored according to each particular zone’s necessities, in order to achieve successful management goals” (Rivera-Arriaga and Villalobos 2001). The following small-scale concerns exist within the state of Quintana Roo, urban development, tourism management, marine ordinance, and point and non-point source pollution. At a larger scale, issues consist of the management of coastal ecosystems, erosion control, and black coral management. ELO’s are criticized by Rivera-Arriaga and Villalobos for not being integrated enough, which they intend to remedy by implementing integrated coastal management (ICM) strategies; however, critiques of ICM are worth mentioning.

Karen Nichols’ article on integrated coastal management argues that integrated coastal management (ICM) disrupts community management of resources due to the increased influence and penetration of capitalist economic interests (Nichols 1999). Given this perspective, Nichols’ critique of ICM not only provides significant criticisms of Rivera-Arriaga and Villalobos’ recommendation, but also bears some resemblance to the circumstances in Cozumel. One of the more significant dilemmas that Nichols mentions is that through this organization of the coast, coastal areas become a new arena for investment. This ends up politically and spatially marginalizing previous resource users (Nichols 1999). Nichols elaborates by explaining how ICM divides resource users into favored and disfavored groups and divides areas into use-zones that are regulated at a great cost by the state, an option that the Mexican government could have some serious difficulties achieving given current problems with preexisting forms of coastal management (Nichols, 1999, Rivera-Arriaga and Villalobos 2001). Nichols shows that there are serious considerations to make when managing coastal areas; and more importantly, that when it comes to development, these areas, due to their beauty, are often the first to be penetrated by capitalist interests (Nichols 1999).
In summation, the current design of marine protected areas within Mexico faces many management challenges. The notion of integrating protected areas in an effort to create corridors of protection is praiseworthy; however, the critiques of coastal management reflect a need for the protection of marine areas not only in aquatic areas, but coastal areas as well. Protected areas will cease to be effective until the environment is not simply taken into consideration after development has already occurred. Knowledge of ecosystem functioning and protection of the environment must be taken into consideration prior to, during and after development to be effective.

**Testing the Integrity of Tourist Development: The Cozumel Pier Case**

“There’s no need for subtlety if you want to talk about cruise ships”

(M-BODM-1)

This segment of the thesis highlights one of the most glaring issues of contention in regard to the marine park as a result of tourist development. The Cozumel Pier Case illustrates the lack of socio-political power communities have when vying for influence in developmental agendas; while simultaneously representing one of the key events Cozumeleños perceive to be a negative change in Cozumel’s tourist development, the construction of the Puerta Maya pier over Paradise reef. Cozumel’s reefs are part of the larger Mesoamerican Barrier Reef System (MBRS) which extends from the tip of the Yucatan peninsula near Cancun to Honduras forming the world’s second largest reef network. Cozumel’s reefs arguably contain several of the world’s top dive sites. To protect these resplendent ecosystems, the government of Mexico has designated National Protected Areas in an effort to eventually integrate coastal management amongst their coastal ecosystems. Most of Cozumel’s waters are now conserved under a national marine park (see figure 5.2 below), but this was not always the case.

Recent studies scrutinize Integrated Coastal Management. Critics “suggest that state environmental regulation enables growth-driven industries such as coastal tourism, commercial fishing and bio-prospecting to more effectively extract and consume resources (O’Connor 1994; Peet and Watts 1996; Stonich 1998)” (Nichols 1999: 389). Furthermore, Nichols (1999) argues that “Integrated Coastal Management programs do not heal disabled
community resource management systems; rather, they facilitate the further subversion of these systems by encouraging national and global capital penetration” (389).

As we will see, Cozumel’s parks fit this description very closely and are a simultaneous result of the desire to conserve the island’s reefs on one hand and a result of haphazard concessions on the other. Given this scenario, it is clear to many of the interviewees that the most important component the government of Cozumel strives to conserve is continued economic growth through the perpetuation of tourist development and secondly, preservation of the island’s resources. Until the 1990’s there was only one pier in Cozumel, the International Pier, which had been built in 1971. As dive tourism began to grow on Cozumel there was a need to begin protecting the aquatic life of Cozumel’s reefs. One interviewee explains:
1980, we, the mayor of Cozumel actually asked for a national park. The reasoning behind that was, when I started diving in 1973 there’d be three dive boats out there; we’d take a spear gun we’d shoot some fish, grab us some conch for ceviche, I’d try to find a crab because I love crab. We’d go on the beach and we’d cook lunch. It was great. But as the number of boats grew the area got depleted. So the mayor, Tony Gonzalez, in 1980 made a study and requested the Congress to designate this as a protected area.

(M-BODM-1)

Thus began the protection of Cozumel's reefs. However, there were significant caveats with the designation of this area. Perhaps the most concerning of these was the fact that the protected area did not have substantial legal protection because it only protected the aquatic species within the park. Therefore, the marine refuge area was susceptible to tourist development interests. In a brief summary of events the Puerta Maya project began in 1986 and the construction firm of Consorcio H was given permission to begin the construction of Puerta Maya in 1993 for Carnival Cruise Lines. From 1990-1995 environmental impact assessments were performed by governmental employees to support the construction of the pier (Johnson 1997). These studies concluded that,

…the portion of the reef directly beneath the pier had been destroyed by a hurricane in the 1980s and the construction of the new wharf would damage only 2.9 percent of the existing reef. Consortium H, the developer – under pressure to appear environmentally friendly – hired biologists to remove an estimated 23,000 sponges, coral and other organisms in the path of the pier and transplanted on man–made concrete reefs several hundred feet from the wharf. Environmentalists say that such a massive transplanting of undersea species has not proven successful.

(Moore 1996)

Stephen Colwell, executive director of the Coral Reef Alliance was quick to point out the superseding concern for Consorcio H's pocketbooks instead of the island's reefs by mentioning,

Several other proposed pier sites in Cozumel -- acceptable to the cruise lines, divers and the local community -- were rejected by the Consortium H developers because of their private financial interests. The developers' "environmental" program to rip up and transplant chunks of the reef was a
farce. The removal of the reef was carried out by commercial divers and construction workers, not marine biologists. Large sections of the reef were dumped on sandy areas where there is no prospect that the coral will grow. This process was videotaped.

(Colwell 1996)

Further delegitimizing the government’s environmental impact assessments were studies performed in 1994 by “Project ReefKeeper” and Edward Burkett at the University of Wisconsin - Superior. The ReefKeeper report, which utilized data gathered by Burkett, concluded that,

The bottom cover and coral species surveys undertaken by ReefKeeper clearly verify the existence of a thriving inshore fringing reef 5 meters from shore, and of a significant nearshore fringing reef and gorgonian zone 60 meters from shore, with stony and soft coral bottom cover totaling 25%. Both of these fringing reef areas run straight through the proposed site of the Consorcio H Pier...The risk of impact to the Paraiso Midshelf Reef Bolones from construction and operation of the Consorcio H pier at the proposed site is significant. The damage to be inflicted to the Paraiso Fringing Reef from those activities is serious and definite. Particularly taking into account that these reef areas lie within the boundaries of the Cozumel Marine Refuge, and that the Refuge’s purpose is to protect marine flora and fauna, it must be concluded that the proposed site for the Consorcio H pier is unacceptably close to viable, functional and valuable coral communities that would be placed at unacceptable risk from pier construction and operation.

(Stone 1994: 28-29)

These reports, both the ReefKeeper report (Stone 1994) and Dr. Edward Burkett’s reports (2003) indicated that the reefs underneath the azure waters of the proposed pier development site, seen below in figure 5.3, were in fact very much alive when pier construction began. These environmental studies set the stage for the fomenting environmental dispute. Adding to the flames was a notice released in September of 1994 noting that the construction firm of Consorcio H had been given the go ahead by the Mexican government to construct the proposed pier of Puerta Maya (the site prior to construction can be seen in figure 5.4 below).
Concerns mounted in Cozumel’s environmental community when Cozumelinos found out that the cruise ship pier was given permission to be built next to the International pier. The area of construction was within the boundaries of the marine refuge. Most alarmingly,
however, the pier was planned to be built on top of one of Cozumel’s most beautiful near-shore coral gardens, Paraiso reef.

Environmental problems associated with the construction and operation of cruise ship piers that Cozumleños were concerned with at the onset consisted of problems with sediment in the concrete mixing runoff from development projects that had the potential to flow to the shoreline and contribute to coastal runoff that settles on coral species, potentially obstructing sunlight and affecting the health of the reef (Eckert 1997). Additional concerns consisted of the disturbance the ships propellers would create when maneuvering near the reefs. These issues are a very real concern when 30 percent of the Caribbean’s reefs are in danger due to runoff, sedimentation and untreated hotel and sewage discharge (Gössling 2003: 7). Developmental actions such as these turned Cozumel into a “politicized environment” (Bryant and Bailey 1997), which manifested itself in the actions of these public and private movements involved in the planning and development of cruise ship piers and their impact on the island’s coastal environment.

An additional concern by interviewees is the speculation surrounding the possible bribery involved in the environmental impact assessment to ensure pier construction. The potential for corruption and bribery is illuminated by one interviewee in reference to the year construction began, “95 when they forgot it was a protected area and they said hey build a cruise ship pier. The problem was that it was political money, they have so much money to burn and they can get any permit they damn well please, the project was cancelled three times but it didn’t mean anything” (M-BODM-1). During this time, “In a March 1995 referendum, 60 percent of the island’s voters called for the dock to be built elsewhere”, however, the community’s voice in this instance was not to be heard by the government, despite the fact that “From the beginning we always said we are not against the pier or the investment,” said Dora Uribe, a Cozumel lawyer who heads the anti-dock forces. ‘We are just against the pier where they are putting it” (Preston 1996). As Peet and Watts have noted “This is why communities have to be understood in terms of hegemonies: not everyone participates or benefits equally in the construction and reproduction of communities, or from the claims made in the name of community interest” (Peet and Watts 2004: 24).
Given these dire circumstances, environmentalists on the island organized and were led by Dora Uribe who represented concerned Cozumelinos and drafted a formal complaint, which “argued that the government circumvented its own environmental laws in allowing the construction in the ecologically sensitive area” (Moore 1996). Dora Uribe also played a crucial role in the composition and submission of the petition to the NAFTA Commission for Environmental Cooperation which made an attempt to “scale-up” the conflict and make the Mexican government accountable for their actions. As one interviewee mentions, questionable development practices in Mexico were not uncommon,

The NAFTA claim went in and it was proper because they really did overlook the fact that it was a protected area when they issued the permit. And what the problem was… that the secretary of the environment became secretary of the environment after having approved five very controversial projects for influential government people in the previous administration when she had been President of the “Instituto Nacional Ecologia” the people who actually issue the permits.

(M-BODM-1)

Regardless of the possibility of foul play, the effort to make media headlines throughout the world partially succeeded with publicized protests by Jean-Michel Cousteau and Greenpeace (Moore 1996; Greenpeace website). However, the submitted grievance on the part of concerned Cozumelinos failed to cancel construction of the pier or punish the Mexican government for circumventing its own environmental laws. Although the NAFTA Commission for Environmental Cooperation (CEC) ruled in favor of the plaintiffs and wrote a formal factual record of the incident, “the commission cannot impose sanctions; the most it can do is to chastise a country it deems is tolerating egregious environmental abuses” (Preston 1996). In the words of one interviewee:

The whole NAFTA issue, having that committee review the whole situation, and I read the results and it was bunk. You know they… it was just a bunch of show. The US didn’t want NAFTA and all the ifs and buts they put up, “well it'll be an environmental disaster” so they had to create this institution to prevent it and try to keep it from becoming an environmental disaster, the environmental disaster was over… Yeah, that committee, had no bite.

(M-BODM-1)
In yet another summation heard time and time again, the entire conflict between the ecological interests of the community of Cozumel, the political agendas of the Mexican state, the financial interests of Consorcio H, and the ineptitude of multinational trade and development organizations has played out amidst one another in a textbook political ecology scenario in which the interests of development supersede those of communities and the environment.

Although environmentalists on Cozumel lost the fight for Paradise Reef, they did achieve one concession as a result of their efforts. In an attempt to never allow another mistake like this to happen and to save face after the report from the CEC, the Mexican government decided to upgrade the Cozumel Marine Refuge, which only protected particular species of fauna; to a certified National Park, which protected the entire area against development encroachment. On the 19th of July 1996, the government of Mexico declared the Reefs of Cozumel National Park an official entity that encompassed the coastal area from Arrecife Paraiso to Punta Chiqueros, which can be seen below in figure 5.5 (Carrabias Lillo et al. 1998). While the national park has provided a more rigorous protection of the remaining reefs and coastal areas of Cozumel, the initial environmental concerns raised by environmentalists prior to the construction of Puerta Maya have not been absolved. Various societal and environmental concerns raised by other authors (Nichols 1999; Trist 1999) in regard to coastal tourist locations and the management areas that are designed to protect these areas are evident in the observations of Cozumeleños.

**Cozumel's National Marine Park: Between a Pier and a Hard Place**

Paul Robbins outlines the various discussions surrounding the problematic features of conservation areas in a thesis, which argues that:

Control of resources and landscapes has been wrested from local producers or producer groups (by class, gender, or ethnicity) through the implementation of efforts to preserve “sustainability,” “community,” or “nature.” In the process, officials and global interests seeking to preserve the “environment” have disabled local systems of livelihood, production, and socio-political organization. Related work in this area has further demonstrated that where local production practices have historically been productive and relatively benign, they have been characterized as
Figure 5.5: Reefs of Cozumel National Park
(Source: Programa de Conservación y Manejo Parque Nacional Arrecifes de Cozumel México)
unsustainable by state authorities or other players in the struggle to control resources.

(Robbins 2004: 149 - 50)

The argument made by Robbins regarding the complexity that surrounds these hinge-pins of environmental conservation vary from the state using conservation areas to wrest control from previous resource users to the constructed character of natural wilderness to the problematic features of territorializing conservation space. The problematic features in Cozumel are primarily the territorialization and spatial bounding of conservation units to create discrete, mappable units, which create problems (Robbins 2004, Zimmerer 2000). The exclusion of previous resource users - as we have seen above in regard to the Cozumel Pier Case - and the disabling of socio-political organization adversely affect the community (Robbins 2004). One especially problematic feature is the spatial bounding of conservation units. Robbins explains how, “In ecological practice, the problem with such an approach is that the bounded spaces and territories typical of contemporary conservation (imagine big fenced squares or round polygons) poorly match the ecosystem functions and flows of diverse natural elements” (Robbins 2004). In the case of Cozumel, ocean currents and sea-life populations flow in and out of the park’s boundaries carrying healthy and unhealthy elements in and out of the park. As one would expect, the difficulties involved in protecting and preserving Cozumel’s reefs are monumental.

Marine Park Management Concerns

While terrestrial “Third World” political ecology studies have oftentimes noted the landholder as the victimized stakeholder caught in the midst of a commercialized world in which they are forced to degrade their land in the hopes of liberation or the achievement of a livelihood, this study argues that a new stakeholder is pitted between their own interests of protecting their livelihoods and the environment and those interests of exterior political and economic forces, which seek to assert their power through the appropriation and commodification of the environment.

In this case study the employees of Cozumel’s National Marine Park are bound between the obligations and funding restraints of the national government and the expectations and critiques of multiple stakeholders involved in various ways with Cozumel’s
National Park. This segment will map the ecological, social, and managerial concerns of this precarious situation in which the national marine park and its employees find themselves.

Numerous stakeholders have voiced critiques of Cozumel's marine park. However, few understand the complex and interrelated processes involved in coordinating a conservation area with the local community. As one interviewee mentions,

The idea in general of a national park is very good, I think it’s good. The problem, and I think it’s the worst part, is that when you try to realize the idea it’s very difficult no? Because you have the social part the economical part and umm, if you think “oh, I’m going to work in the reefs and the life will be very uhh like excellent and perfect and that”; but the people who are there and people work there and you cannot just come to a place and close everything and don’t touch anything because people work with that no? So you have to think conservation but think the way that people can use the resources and also conserve, no? And THAT is very difficult. The idea of protection and conservation with the social and economical part is the worst part; I don’t think many parks can do it, no?

(M-MP-1)

The National Marine Park of Cozumel is a branch within SEMARNAT (Secretaria de Medio Ambiente y Recursos Naturales), which is part of CONANP (Comision Nacional de Areas Naturales Protegidas). Cozumel’s marine park is divided into use zones, which can be seen above in figure 5.5. There is a restricted use zone, a low intensity use zone and an intensive use zone. Each use zone has particular activities that are either allowed or restricted, such as diving, fishing or aquatic research. The marine park is partly funded through the collection of fees, which are paid for in the form of a bracelet for every diver or person using the marine park for recreational purposes. Cozumel’s Marine Park is divided into five divisions which consist of the director, administration, field group or “Rangers”, education and monitoring (M-MP-2: 32:56). The marine park performs outreach programs to educate Cozumeleños about the benefits of the coral reefs and the monitoring division performs studies and publishes papers on the health of the reef. Among the various studies published by the park a few consist of a coral cover report, *Caracterizacion y Monitoreo de los Arrecifes Coralinos del Parque Nacional Arrecifes de Cozumel* (2002), and the impact of coral bleaching on the reefs of Cozumel, *Evaluacion del Blanqueamiento de Escleractinios en el Parque Nacional Arrecifes de Cozumel* (1999). However, a majority of the marine park efforts and resources are focused
on educational outreach, patrolling and enforcement of marine park regulations and monitoring of the reefs.

The efforts to conserve Cozumel’s reefs are met by a number of complex interactions between the employees of the Marine Park, the government and various Cozumeleños who interact with the park. The Marine Park is partly funded through the collection of fees from bracelets sold to divers or snorkellers entering the marine park. This money is then sent to Mexico’s Treasury, or “Hacienda” in Mexico City. The “Hacienda” then distributes funds to the various national parks throughout the Republic according to need. Although Cozumel receives a significant share of the tourists, and therefore the most revenue, according to interviewees the funding allocated is significantly less than what it provides. Interestingly, however, in regard to governmental funding one interviewee felt that the amount of money that the government or “Hacienda” provides is “sufficient, it’s enough. But the administration sometimes is not the best” (M-MP-2). The interviewee noted that they had powerful boats and equipment (M-MP-2), although concerns were expressed regarding the timeliness in which funding for the national park arrived (M-MP-1). However, a problematic aspect is that most of the boats that the marine park owns are used by the Rangers for patrolling the marine park. This means that the monitoring crews sometimes have to rely on charity from local dive shops that are willing to provide their services to the marine park so they can monitor the reefs and perform transects. Furthermore, there is a concern for more employees and better benefits. One interviewee said, “I think more people are needed here no? Most of the personnel of the national park doesn’t have the best conditions to work and people who work here are really working for the love of the reef because the conditions are not that good” (M-MP-1). In a similar vein, another indicator of the need for more personnel is the fact that some of the studies are performed with the aid of volunteers.

While the relationship between the Marine Park and the dive shops discussed above may appear cooperative at first glance, there is some animosity between the marine park personnel and the dive shops. Some dive shop employees have complained that the marine park does not provide enough information to the public about the reef’s health or enforce park rules diligently enough (M-BO,DM-1, E-BO,D-1). The marine park Rangers patrol the
marine park during the day; but not at night, which presents another problem in regard to illegal fishing. Another duty of theirs is to check dive boats for visitor’s bracelets and to make sure regulations are not being broken. This means a complex and sensitive series of interactions between the Rangers the divers and dive masters. As one interviewee explained,

I think it’s a big problem because this is the main reason about the dive masters don’t have a good relation with marine park, because these fees. I agree with the fee, but I no agree with the way of ask for the fee. Because the Rangers go to the boat and “let me see your bracelet, let me see your bracelet” and our tourist get angry with that and the dive master get angry and this precipitates a bad relationship because when in-between Rangers, the marine park, and the dive master and tourist.

(M-MP-2)

This interaction is perceived by the interviewee above as unsettling to the dive tourist who may not tip their dive master after the dive due to the interaction, which leads to complaints within dive shops and results in the dive shop being less compliant with the marine park in their interactions. It is a compromising situation for all parties including the marine park Rangers who are responsible for ensuring that dive shops are charging money for the park fees and actually providing divers with bracelets.

Thus far the discussion has shown the complex socio-political networks that marine park employees have to maneuver in order to fulfill not just an occupational duty, but also a personal duty to protect a beloved ecosystem. Marine park employees are often the common scapegoat for blame between governmental and social entities. Furthermore, larger socio-economic forces are consistently at work to further undermine the integrity of the marine park by promoting tourist development along the coast that does not adhere to scientifically sound ecological standards.

**Marine Park Ecological Concerns**

There are numerous ecological concerns within the marine park as noted by the observations of various stakeholders involved with it. This chapter highlights the negative environmental observations of tourist development on Cozumel. Nothing is allowed to be extracted from within the national marine park boundary, including fish. This has inevitably led to some tensions between the fishing community of Cozumel and the dive shops and
national marine park employees, which has resulted in the marginalization of fishermen in the local economy. Furthermore, fishermen have had to resort to illegal fishing or find different locations to fish. As one interviewee explains in their account,

There is a community of fishermen here also, but like Cozumel start bringing more tourism like the fishermen start being a minority group so all the diving shops started pushing and that was good in part because they win. The diving shops they need more the name for the national park like that the reefs are national park because it’s like an attraction for the tourist. And the fishermen no, they need just the fish. So the diving shops were like more and it start pushing more to have a national park. And the fishermen didn't agree with them and they give them some areas on the other side of the island.

(M-MP-1)

Many accounts within political ecology literature explaining this type of scenario have vilified the state and tourist related businesses, such as dive shops, when it comes to the displacement of previous resource users. And this scenario certainly adheres to Robbins’ (2004) thesis in which the socio-political influence of previous resource users, the fishermen, has been usurped by more powerful interests, namely the government and the dive shops. However, it is important to mention that each place has its own unique context. The economy that fuels the continued extraction of Cozumel’s characteristic sea life is the restaurant business, which purchases lobster and conch for dishes served to tourists. In figure 5.6 below, the United Nations has listed some of the primary sea life desired throughout the world. Lobster, conch, turtle and grouper are a few of the primary species caught by both legitimate and illegal fishermen to provide to local restaurants. In Cozumel fishermen do not have far to go to continue fishing outside the border of the marine park. This illustrates the problems of imposing a political geography over an ecological geography (Botkin 1999). Furthermore, despite stiff penalties for doing so, much of the illegal fishing for lobster, crab, turtle and octopus occurs at night. The following interviewee explains.

The other problem is the fishing. In marine park there are fishing, it’s restricted, it’s prohibited but there are some illegal fishing but it’s not a big problem. Mostly fishermen, illegal fishermen catch lobsters at night and groupers… but it’s not a big problem. Outside of the borders of the Marine Park there are a lot of fishermen and the fishes don’t live all in the marine park, they go out or in.
Figure 5.6: Aquatic species sought after for world fish market.
(Source: Spalding et al. 2001)

But I think this is the one good thing about the marine park because if you compare Cozumel with other places that are not protected, the others have a few fishes.

(M-MP-2)

While Cozumel may have more fish than other locations throughout the east coast of the Yucatan peninsula, observations vary. One interviewee has mentioned that, “the sport fishing outfit is good business but the number of fish caught per year is declining severely” (F-BO-1). Fishing may have been the dominant economic activity on the island until the 20th century but tourism’s consumption of Cozumel’s coastal and aquatic environment has replaced fishing as the chief economic export. This has resulted in the marginalization of fishermen within Cozumel’s economy and has legally excluded them from previous resource areas, but fishing outside the marine park is still allowed and in a functional way the continuing demand for lobster and conch in restaurants is still tempting enough for fishermen to risk hefty fines in the pursuit of conch and lobster on night dives.

Coastal Development in Cozumel

Another key concern expressed in interviews regarding the health of the marine park is the concern for tourist development construction, drainage, sewage, and nutrient runoff in
coastal areas adjacent to the marine park. Since the 1980s, there has been significant hotel construction along Cozumel’s south west coast, which can be seen when comparing red polygons in the 1988 land cover image in figure 5.7 with the red polygons in the 2001 image in figure 5.8 below. The previously existing forest and mangrove coastline of this portion of the island has been culled to build resorts at the water’s edge of Cozumel’s marine park. In addition, areas to the north of San Miguel have been developed for hotels and golf courses that can be seen in images 5.7 and 5.8. A two lane highway connects this side of the island. In conjunction with the increased urban area of San Miguel mentioned in chapter 4, this is yet another example in which tourist development has changed the physical landscape of Cozumel. Numerous authors have cited the detrimental effects of construction processes on coral reefs in regard to tourism and recreation (Turgeon et al. 2002, Potter et al. 2004, Goodbody and Thomas-Hope 2002) by highlighting destructive practices such as mangrove destruction and the runoff of sedimentation into coastal areas.

Cozumel is no exception and the development that has taken place thus far, if not regulated and monitored, may be adversely affecting its reefs. One recent news article reported that 1000 square meters of red mangrove forest had been destroyed to construct a private beach villa (Cozumel News in English Vol. 24). Further construction of hotels and tourist facilities along Cozumel’s coastline continues today (see figure 5.9 below). Additional problems associated with hotel construction are the destruction of mangroves for the mixing of concrete (M-DM-2) and improper sewage disposal. While the city does have a sewage treatment plant, CAPA (the water utility company of San Miguel) has admittedly stated that it needs to upgrade to keep up with Cozumel’s growth (Cozumel News Volume 20). But as one interviewee mentions,

The waste of the city goes to the reefs in some way. In Cozumel all the ground is cenotes, the fresh water filters through the cenotes and these water get out to the reefs. This is called eutrophication and this is a big problem and this produce algae blooms.

(M-MP-2)
Figure 5.7: 1988 Land Cover Map. Map by author 2006.
Cozumel 2001 Land Cover Classification
Class Names
- Grass / Roadside Vegetation
- Shallow Water
- Regrowth
- Moderately Deep Water
- Mangrove
- Lagoon
- Forest
- Deep Water
- Cleared Vegetation
- Barren Land / Clouds

Map Prepared By: Carl Nim
Map Coordinate System: WGS 1984 16N

Figure 5.8: 2001 Land Cover Map. Map by Author 2006.
Furthermore, many of the preexisting hotels along the coast are in question as to whether or not they have proper sewage disposal. As another interviewee said,

And because we have more construction along the coast now, sometimes they have directly discharge to the coast, that’s very bad. Like sewage and things. Sometimes like the hotels they supposed to have treatment plants and sometimes they don’t. I think for the town there is only one treatment plant and that is not enough also. Some parks, they try to keep their gardens bright green grass and they put fertilizers and those fertilizers go underground and that mix with the water and go out to the ocean.

(M-MP-1)

As the first interviewee mentioned, this process of eutrophication has the ability to smother coral with excessive amounts of algae. While some coral species consume small amounts of algae, abundant amounts of algae creates blankets of the material and out competes the coral for much needed sunlight.
Dolphin enclosures also contribute to the increased release of nutrients into the marine park. Dolphin enclosures have received a significant amount of media attention recently in regard to the inhumane processes dolphins go through when they are caught. Many of the dolphins that are brought to tourist dolphin enclosures are captured in the waters off of Asia in a process that can only be described as brutal and then transported half way across the globe to their final destinations in the Caribbean (ABC News 2005). The dolphins are then placed in small pens and trained to interact with tourists. Two locations in Cozumel have dolphin enclosures. The one that has been in business the longest is Dolphin Discovery, which is adjacent to Chankanaab National Marine Park shown below in figures 5.10 and 5.11. Much controversy has resulted from this tourist attraction. In fact the importation of dolphins from the Solomon Islands to Cozumel and Quintana Roo has resulted in protests from the Cozumel Humane Society and the “resignation of SEMARNAT general director Georgita Ruiz, who has been directly involved with the case” (Cozumel News in English vol. 8: 2004). Chankanaab also has a botanical garden with manicured lawns. This has led to the investigation of the area due to the correlation with these tourist features and the high occurrence of algae in the area. One interviewee explained their own jovial view of the absurdity of these tourist features:

I also don’t agree having the dolphins there in captivity no? They are in a very small area, they produce a lot of waste no, then it’s a lot of nutrients in the area, all the coral around it is dead, there is no coral alive anymore, because there are too many nutrients and the algae grows very fast, no. And everyday it’s getting an extended area bigger, bigger, bigger, dead. Because the dolphins are in an area where there are coral too. You know dolphins in captivity produce a lot of nutrients in the water, no? Unless they put them like a diaper no? … The captivity dolphins are on a reserved area, which is a contradiction, you know? You can not have a reserved area and I don’t know in the forest and have the birds in cages. You know, you go out to Yellowstone and see the birds in cages, “Oh pretty!”

(M-DM-2)

Despite the comedic portrayal of the issue, increased nutrients in the water in this area has piqued the interest of the Global Coral Reef Alliance which issued a report on the phenomenon. The report concluded, that based on observations, there was significant point source release of nutrients in the area as evidenced by profound algae growth surrounding the dolphin enclosures (Goreau 2003).
Perhaps more importantly, the study also found that there is a countercurrent near the enclosure that flows from north to south (Goreau 2003). This is important because Cozumel is known for its relatively fast predominant current, which runs from the south of the island to the north. This fact could be implicated by scientific studies in the dispersal and dilution of nutrients away from the majority of Cozumel’s reefs. However, this countercurrent undermines this trend and shows that the fluvial processes taking place on Cozumel’s coastlines are much more complicated than previously thought.
Further scientific studies, with appropriate aquatic monitoring devices, are needed to properly assess the areas and amounts of nutrient discharge to enforce proper sewage disposal and nutrient release.

**Port and Cruise Ship operation near the Marine Park**

The final concern for this segment of the thesis is in regard to port and cruise ship operation in the vicinity of the national marine park. As discussed in the segment devoted to the Cozumel pier case, environmentalists were concerned with the construction material, sand and discharge that the pier and cruise ships may create or stir up. This fear became realized on May 9th 2005 when the pier operators of Puerta Maya were videotaped dumping concrete and other building materials off the end of the pier (Cozumel News in English vol. 30 2005). A local marine biologist who witnessed the event,
…said that the tons of construction waste material that they threw into this zone—including lime and petroleum-based products—will severely harm the coral reefs by hugely eliminating water clarity and blocking out the vital rays of the sun. He indicated that also the petroleum-based materials in the mix will seriously affect the level of acidity and alkalinity of the water and will have a profound effect on fish life. He reminded that in Cozumel there exists a permanent current of south to north and this allows the out-of-control dispersion of these clouds of particles. They poison the water so that animals cannot breathe for lack of available oxygen and the reefs are filtered too much from the sun.

(Cozumel News in English vol. 30 2005)

This report is just one example that illustrates the lack of concern that Carnival Cruise Lines has for Cozumel’s reefs. The most scandalous example occurred more recently when the Carnival Cruise Ship Inspiration nearly ran aground within the marine park boundary on top of Paradise reef and almost turned a group of divers into chum. On March 17th at 3:30 pm “the Carnival cruise ship Inspiration passed within a meter and a half (60") of a group of 12 divers who were exploring the bottom of reef Paraíso at the time” (Cozumel English Volume News in 24). According to a video viewed by the researcher, the cruise ship Inspiration was adrift with a tender attached to the side while stationed off the coast of Cozumel parallel to the Puerta Maya pier (A diagram of the incident can be seen below in figure 5.14). Both the Puerta Maya pier and the International pier had cruise ships moored pier-side. A front came off the Yucatan peninsula which resulted in a squall that broadsided the Inspiration and began to push it towards the coast, which can be seen in figure 5.12 below. Some of the other cruise ships were aware of the rapidly changing conditions, shoved off, and headed bow first into the gales. However, the Inspiration continued to be blown ashore. Eventually the ship’s captain became aware of the dire situation and ordered the engines full ahead to avoid being blown into the Grand Princess, which was still pier-side on the Puerta Maya Pier. A picture taken from a cabin on the starboard side of the Grand Princess can be seen in figure 5.13 below as the engines of the Inspiration straining at full or flank speed emit plumes of smoke. The problem is that by the time the Inspiration managed to barely clear the side of the Grand Princess, it was headed full speed into the marine park in a direct line towards Paradise reef. What the ship did not account for was the dive party still submerged at Paradise reef which was led by the dive shop Aqua Safari.
Figure 5.12: Inspiration with Tender alongside prior to being broadsided by the squall.  
(Source: ScubaBoard.com)

Figure 5.13: Inspiration attempting not to broadside the Grand Princess.  
(Source: ScubaBoard.com)
According to reports from dive masters who work for Aqua Safari, the Inspiration’s propellers came within a meter and a half of the 12 divers and stirred up sand in the area adjacent to the reefs so much that divers could not see their hand in front of their face (Cozumel News in English Volume 24). The ship, ordered to remain in port until the ship’s captain admitted to the incident and held accountable for any potential problems that the incident may have caused by nearly hitting the divers or operating within the national marine park, speaks to the hazards mentioned by Cozumeleños. Although no human lives were lost, this is just another example of how a previously expressed concern by Cozumel’s environmentalists has become realized. The shame of it all is that if the planning interests of the Cozumeleños was prioritized and the placement of the cruise ship pier was moved somewhere else, it could have prevented this near disaster.
The Cozumel Pier Case…Revisited? Plans for a Post-Wilma Cruise Pier.

During the summer of 2005 two hurricanes directly hit Cozumel. Hurricane Emily struck the island while this research was in progress in June and hurricane Wilma dealt a second and more powerful blow to the island in August of 2005 when it sat over the island for more than two days. Wilma left Cozumel in tatters. Nearly the entire malecón was destroyed and the cruise ship piers of the island were severely destroyed. Fortunately, the resilient nature of Cozumelenses triumphed yet again and the island's inhabitants managed to get back on their feet within a few months.

Proposed reconstruction efforts are ambitious. According to a Post-Wilma website, (Wilma Cozumel 2006) Carnival is proposing an extension to be placed on the Puerta Maya pier that will branch in the direction of the marine park and facilitate the visitation of even more cruise ships to the island, which can be seen below in figure 5.15.

This project, like the first project, will need the approval of Mexico’s environmental authorities; but it is yet to be seen whether or not the government will confine the tourist development taking place on Cozumel or if they will double the capacity of all the cruise piers allowing for 12 cruise ships to be pier-side at one time with other ships adrift offshore. When many interviewees’ observations of Cozumel’s environment are already indicating that
mass tourist activities are straining Cozumel’s resources, there seems to be no clear limit to the continued tourist development of the island and no bounds to the seemingly limitless growth and intervention of capitalist interests that are taking their toll on the small island’s environment. In another round of tourist development initiatives, Cozumel is staged to yet again test the integrity of the government’s resolve to promote sustainability and protect this island’s spectacular natural resources.

**Conclusion**

Although the national marine park in Cozumel is charged with protecting the flora and fauna of the park area, this chapter has shown that it is a monumental task given the multiple contradictions in the planning, development and protection of the marine park. The most prominent example of these contradictions is the construction of the Puerta Maya cruise ship pier over Paradise Reef. This example highlights the way in which multinational environmental policies, such as those associated with NAFTA, are ill equipped to protect the natural environment from public and private development interests. While the marine park has some jurisdiction over the waters within the marine park, it has little say in the developmental processes taking place on the coastline, many of which were established long before the marine park. Furthermore, the marine park can do little about the economic activities taking place outside the boundaries of the marine park. The marine park’s limited political influence and bridled regulatory abilities hinder the protection of Cozumel’s most valued tourist feature, the reefs.

Historically and presently, this regulatory neglect and circumstantial concern for Cozumel’s reefs on the part of the Mexican government has led to their current condition. Examples of this are clear and abundant. They consist of the following: the construction of the Puerta Maya cruise ship pier, which partially damaged Paradise Reef, a once thriving off-shore reef; the construction of numerous hotels along Cozumel’s coastline without requiring ecologically friendly building techniques or proper sewage disposal infrastructure; and allowing dolphin enclosures to be built within the national marine park thereby increasing nutrients in the area. Although these are just a few of the more documented cases of the environmental impacts affecting Cozumel’s reefs, as the observations of interviewees illustrate, there are additional concerns, such as over fishing, cruise ship accidents, and
pollutants from inland sources that have the ability to leak into coastal areas via fresh water aquifers.

Despite the past and present circumstances, as the last portion of this thesis illustrated, development continues on Cozumel. The question, however, is “when is enough” (M-BODM-1)? One Cozumeléño explained that,

Without the reefs this city don’t make any difference with any other city. Actually the city of Cozumel is well planned and designed and, you know it’s a city very common, it has nothing for the tourist except if you go in the water and snorkel and go diving. That’s what makes a difference between Cozumel and other cities. Actually, this area should be only dedicated to divers, in my own opinion. We don’t need the cruise ships we don’t need all these massive tourism, we just need to specialize on the diving and just be an island for divers or snorkellers or people in contact with nature, we shouldn’t have these big huge cruise ships. In December there are 16, 19, 20 cruise ships in one day; it’s a big impact to this small island. But for Mexico becoming like, specializing in certain areas no? Like Cancun, if you want to drink and party and nightlife, go to Cancun no? If you want to lay on the beach, and rest, take sun go to Playa [del Carmen], if you want to dive, snorkeling, being in the water come to Cozumel. That should be the idea, no? Specialize every area. But at a certain point Cozumel wants to have everything no? Wants to have the people from the plane people from the cruise ships and in the end you start to ruin it no? As you can see there are lots of places already ruined because it is too many people coming here and the development is not organized in accordance to what is most important for Cozumel, which is the reefs. And then you organize everything after that.

(M-DM-2)

Given precedents of the past, such as the vote for the construction of Puerta Maya, it is unlikely that planners will consider the viewpoints expressed by the interviewee above. However, if planners are genuinely concerned with creating a sustainable tourist destination within Cozumel, this is an alternative approach that they would be doing a disservice to ignore.
Chapter 6

COZUMEL: AT THE CROSSROADS OF TOURIST DEVELOPMENT

Ecological movements are not creating new economics for a new civilization, they are not presenting a solution for the crisis of the modern world, and they do not have the capacity...for ending development. But they can show the difficulties, shortcomings and limited scopes of the dominant as well as the alternative models for development at the level of action.


Introduction

I have attempted to illustrate the political and economic complexity of the globalized forces at work on the island of Cozumel and their perceived effects on the island’s environment as well as the contentions and environmental movements that have taken place on the island as a result of increasing tourist development. The globalized forces at work in Cozumel consist primarily of the cruise ship industry, the tourists visiting the island on a daily basis and the new tourism infrastructure, such as the new dolphin enclosures that are being filled with dolphins from the Solomon Islands. In accord with and based on other political ecology studies, along with the findings in this study, globalized forces such as these do not prioritize the local environment and its ecological health in which they have clandestinely managed to operate; in fact, quite the opposite has occurred. Following Nichols (1999), most of these tourist entities prioritize the further perpetuation of opportunistic capitalist expansion into pristine natural tourist spheres of influence they find to be malleable enough to exploit; leaving the environments in which they operate in a significantly altered state.

I argue that tourist studies, and more importantly tourist locations, not merely Cozumel, are much more than they appear. I argue that many tourist destinations are the front lines between the power relations of the traditional “Third World” and the developmental interests of an ever increasing, globalized, neoliberal economy that seeks to consume any physical environment it views as profitable. Tourism represents the tip of the
spear of neoliberal, globalized, economic endeavors and it should be regarded with importance and caution, not insignificance and neglect. So while studies like this one may not reveal the theoretical “cure-all” for the world’s tourist development woes, if there even is such a thing, a vital point is made in the quote above. If nothing else this case study certainly lends a hand to other tourist destinations as an example of some of the problematic features that are associated with courting mass tourism and the cruise ship industry.

**Common Threads of Development**

Development and its relationship with sustainability as a phenomenon pitted against nature is a geographic topic of interest amongst many social scientists; perhaps the most prominent of these being Richard Peet and Michael Watts (2004) and Arturo Escobar (1996). The importance of studying the processes of what Kevin Cox (2005) describes as “the metaphoric barriers which say ‘No Admittance Except on Business’” or seeing behind the curtain of capitalism to better understand what occurs in the boardrooms, golf courses and other secluded decision making locales is certainly needed to ensure accountability amongst developers of all affiliations. If these developmental processes could be unveiled much could be revealed in regard to the motivations and intentions of stakeholders involved in maldevelopment. Furthermore, and perhaps more importantly, accountability for developmental practices could be prioritized. But as we all know, the complexity surrounding issues regarding development are far more difficult to unearth and enforce.

Although many interviewees throughout this study alluded to the possibility of payoffs, corruption, bribery or “propinas” by either Carnival Cruise Lines, Consorcio H or previous property owners of the area now occupied by Puerta Maya in exchange for the endorsement of Mexican government officials “signing off” on the environmental impact assessment (EIA); actually proving these actions took place and amongst whom is virtually impossible. Furthermore, most interviewees who mentioned the possibility of corruption simply followed the comment with the observation that this type of thing happens all over the world, it is just that in Mexico it is more pronounced or notorious. One interviewee mentioned a joke that sums up interviewees perceived differences between corruption in the United States and Mexico well.
I’m going to tell you a good joke: The President Fox and the President of the United States they visiting each other and the American President says “I want to show you the bridge that we just made”, beautiful bridge, and the President Fox say, “Oh my God, that’s really costly!” and the American President say yes, costly, two thousand million dollars… 30 % of that in here (points to pocket). Then the President of United States comes to Mexico and the President of Mexico say “you see that bridge, cost two thousand million also” and he said (American President) “I don’t see any bridge?”. “Oh, it’s 100% here” (Mexican President points to pocket).

(M-BO-1 in interview with F-BOD-1)

Right after the joke, the other person in the interview responded with,

You know it’s not a Mexican disease. It’s everywhere. Because you can go to Mexico and find places where the cities, the government, takes care of the city.

(F-BOD-1)

These two perspectives highlight a few of the perceived similarities of neoliberal economic development throughout the world, the possibility for corruption, and the interviewee’s lack of confidence and feeling of powerlessness in public officials when it comes to mediating their interests with the interests of developers. To be certain every tourist development project in Cozumel is not entirely riddled with corruption, but there are glaring examples, such as the Cozumel pier case, that have come to exemplify the lack of credibility Cozumelenos have for tourist developers and the public entities charged with safeguarding Cozumelenos and their environment. In an article exploring other problematic features of tourism development in coastal areas, Warnken and Buckley (1998) mention a few other components that inhibit EIA’s. They note that EIA’s are limited in regard to their scientific quality in a coastal tourism development context due to a lack of peer reviewed studies, limited time and financial restraints. Given these similar conditions, it is no wonder that the coastal environment of Cozumel is at a disadvantage when placed at odds with tourist development that seeks to make the most of a “time is money” business philosophy.

Whether or not reparations or concessions were made on the part of the Mexican government to increase the size of the marine park in an attempt to ensure something like
the Cozumel Pier Case would never happen again is irrelevant. The damage had already been done. Any future protests and public outcry against seemingly environmentally risqué development initiatives run the risk of falling upon deaf ears because a national precedent had been set in which the majority’s voice against pier construction in the Paraiso reef area was silenced by the interests of top-down developers. Furthermore the entire NAFTA Commission for Environmental Cooperation (CEC) investigation process exposed Cozumel, Mexico, the United States and Canada as vulnerable to an array of developmental interests. NAFTA’s CEC had revealed their Achilles heel; the inability to truly protect the environment despite endless NAFTA environmental rhetoric stating the contrary. The most pressing concern is that this scenario suggested that the CEC is powerless against any environmental infractions that could present themselves in the future. Sadly, the most the CEC can do to deter future offenses is to write a formal letter acknowledging the infraction with no penalties doled out to public or private violators.

The Cozumel pier case, and in general tourist development in Cozumel, exemplifies the sequential trends of dominant tourist and developmental theories. They serve as a reminder of the problematic nature and significant flaws in contemporary tourist development methods. As Daltabuit and Pi-Sunyer (1990) explain in their case study of the Mexican state of Quintana Roo, the economic incentives involved in tourism development are oftentimes highlighted to entice national and corporate benefits, incentives which inspire plans and are then carried out via a top-down planning and management method that opens a virtual Pandora’s Box of associated development ills. Daltabuit and Pi-Sunyer (1990) mention how,

In most cases, though, rapid tourism development does carry economic and social costs, including the distortions wrought upon the local economy by inflation and the displacement of such local industries and livelihoods as farming and fishing. As for the social price, a cost that is unlikely to figure in economic projections, this often includes the growing economic marginalization of the peasantry - basically, their transformation into a local underclass working for uncertain wages. Among the cultural costs are the progressive loss of a sense of identity and place, the displacement of local cultural models by metropolitan or hegemonic ones, and, in many instances, a sociocultural breakdown that manifests itself in factionalism, heightened levels of domestic conflict, and increases in alcoholism, delinquency, and prostitution. These dislocations - social, cultural, and economic - typically go
hand-in-hand with - indeed, are in large measure a reflection of - new correlations of power that tend to transform the local population into a servile class catering to the needs of foreign visitors.

In reference to a similar geographic setting to Cozumel, small islands, Gössling (2003) mentions a significant point mentioned by McElroy and de Albuquerque (2002: 26), who conclude that “experience indicates that the political directorate in many small islands routinely bypasses the local development authority to approve of major development projects despite community opposition and highly negative impact assessments”. These various observations in regard to tourist development begin to illustrate a mosaic in a likeness of that of Cozumel.

In a sweeping review of the environmental impacts of coastal tourism development, Davenport and Davenport (2006) explain a fitting theory of tourist development proposed by Holder (1988: 281) called the ‘self destruct theory of tourism’. This theory claims that, an attractive natural place may become developed for an upscale exclusive market wanting low-density settlement and willing to pay top prices. Soon other developers move in and competition develops. In order to fill rooms, rates are lowered, standards are proportionately lowered and the place becomes a destination for mass tourism. The elite move on to unspoiled areas.

While this theory partially explains the status quo, Cozumel’s tourist development history certainly does not mirror that of other locations throughout Quintana Roo. As mentioned earlier, Cozumel began as an independent tourist destination for divers long before the Mexican government began developing mass tourism growth poles such as Cancun. However, as I have attempted to illustrate, the island has made a significant shift in regard to who they have currently chosen to cater to. If visitation numbers do the talking, then it is no secret that the island is aligning itself to pander to the whims of the cruise industry. Oddly enough, the efforts of tourist entities in Cozumel have succeeded in achieving just the opposite of what many tourist destinations throughout the world have strived to attain; an affluent, environmentally conscious, culturally sensitive tourist clientele. Instead, what is occurring in Cozumel is the extension of the Yucatecan tourist phenomena discussed by
Torres and Momsen called “Gringolandia”. As if speaking directly about Cozumel and the globalized cruise tourism networks that are indicative of the cruise industry Wood (2000) describes, Torres and Momsen explain how the Gringolandia tourist region “illustrates the complex web of stakeholders and social relations occurring at multiple scales that construct transnational spaces that (re)produce inequalities between local people, communities, regions and nations”. Furthermore, “[t]hese inequities involve not only power and economics but are also evident in the subordination of local cultures, social structures, and environments” (2005: 332). The aforementioned theories and examples of tourist development within the Yucatan Peninsula support some of the perceived concerns of Cozumelinos when imagining the potential directions tourist development could take on the island. These observations and concerns are more than just alarmist calls for social equality and environmental respect; they are the result of harsh lessons learned at the hands of powerful state and corporate stakeholders involved with unilateral development entities - entities that will cease to have an interest in Cozumel’s environment when its resplendent resources are diminished or exhausted.

**Cozumel’s Concerns**

The following is a discussion, albeit far from an all encompassing one, of societal and environmental concerns elicited from interviewees in this study. Amongst the societal concerns mentioned by interviewees, the most pressing of the concerns was the increasing societal stratification of the island’s inhabitants. The increasing population of Cozumel as a result of tourist development has resulted in an increased urban area of San Miguel, which has led to more haphazard and inadequate housing. This is one way in which sub-question 3 is answered; tourist development has lured people from the mainland and other areas of the Mexican Republic to the island necessitating an increase in San Miguel’s urban area. As mentioned earlier, San Miguel’s waterfront is very different indeed from the interior portions of the city. Continued tourist development has managed to invest heavily into waterfront tourist areas, but the jobs provided by the tourist sector have not resulted in a trickle-down effect substantial enough to provide for the capital necessary to build adequate houses and neighborhoods. Daltabuit and Pi-Sunyer (1990) argue that in Cancun there is “some degree of flexibility, some option, with respect to their (Maya) participation in tourism-related enterprises” within the context of a household economy, but they also note that tourist
development largely brings jobs only when construction is prevalent and that jobs associated
with the tourist economy are “generally poorly paid and uncertain”. Although Cancun and
Cozumel are comparatively different places, Cancun being a planned mass tourism location
and Cozumel being a more ecotourist location, their labor concerns are similar.
Furthermore, when juxtaposing the tourist spaces of these two destinations with the spaces
in which the people who support the tourist economy live, it is clear as to where the capital
generated by the tourist industry goes when profits are accrued. This phenomenon,
according to interviewees, leads to a loss of the local Yucatecan way of life due to increased
immigration to the island by other people within the Republic looking for jobs.

In addition, increasing tourist arrivals by cruise ship have begun transforming the
island into another extension of “Gringolandia”. Increased tourist arrivals in the 1980’s for
diving resulted in increased hotel construction along the coast, which can be explained as a
chief transformer of Cozumel’s coastline as seen in the remote sensing images along the
south west portion of the island. This phenomena coupled with cruise ship pier
construction are the primary infrastructural events that have initiated the change in
Cozumel’s coastal areas. The contentions that have resulted from these development
practices are the Cozumel Pier Case and various complaints about improper hotel
development practices, especially regarding proper human waste disposal. Associated
concerns are the de facto privatization of coastlines that exclude Cozumelenses from resort
beachfront areas and the feeling of alienation Cozumelenses feel within public, tourist
dominated spaces.

Sadly, the environmental concerns of interviewees are even more numerous.
Terrestrial concerns that interviewees mentioned are primarily concerned with garbage
disposal and freshwater concerns. Due to the island’s porous limestone geology, many
interviewees expressed a concern for the illegal dumping of garbage into abandoned lots and
the potential for the disposal of hazardous wastes into municipal dumps for fear of intrusion
into the island’s underground Cenotes and aquifers. In addition, the concern for the passage
of contaminants from underground fresh-water sources to coastal reefs is another potential
hazard. In a similar vein, the depletion of fresh water reserves and the possibility for salt
water intrusion is another concern for interviewees. Given the high consumption rates of
fresh water in other island tourist destinations, as pointed out earlier by Susan Stonich (1998) in the Bay Islands of Honduras, this concern is not entirely unwarranted. Other concerns expressed by interviewees are in regard to nutrient runoff from interior sources as well as coastal hotels and dolphin enclosures. Algae growth at the dolphin enclosures observed at Chankanaab National Park are indicators of what could potentially happen to other areas of Cozumel’s aquatic areas if nutrient runoff is not identified, curtailed and properly dealt with. Declining health of Cozumel’s reef is a concern for interviewees. Over fishing is one concern at a local level while coral bleaching documented in a report is another concern at the global level. The final concern is that of cruise ship operation near Cozumel’s reefs. The cruise ship Inspiration incident is just one example of the neglect that cruise ships have for the ports in which they operate. The potential for an ecological catastrophe are no longer alarmist environmental cries but warranted and documented potential disasters waiting to happen. As documented by Rodríguez-Martínez and Ortíz (1999), the schoolchildren of Cozumel have a strong knowledge of the importance of Cozumel’s reefs. Cozumelenses are informed and knowledgeable about the ecological and historical importance of reef ecosystems to their way of life. Their concerns should not be subjugated by the hasty and petulant interests of public and private tourist developers.

**Answers to Research Questions**

This segment will briefly answer my research questions as they have been discussed at length in earlier chapters. Answers to the research questions of this thesis, gathered by the observations of Cozumelenses, foreigners and remote sensing images reinforce the concerns noted above and serve to argue further that the tourist development that has taken place on Cozumel prioritizes economic growth at the expense of their coastal and terrestrial environment. Answers to the sub-questions of my primary research question - How have public and private efforts to enhance tourist development affected stakeholders’ observations of nature on Cozumel? - are explained below:

1) What are the public and private policies which have initiated the change in Cozumel’s coastal areas and what are the contentions that have resulted from it?

The public and private policies that have changed Cozumel’s coastal areas consist of the governmental emphasis on tourism development within the “Maya Riviera” region and
the issuance of permits for the construction of tourism infrastructure, which has been built since the 1960’s. Construction of hotels on the shores of Cozumel are known to clear stands of mangrove forest. The construction of cruise ship piers, such as Puerta Maya, are known to have demolished and transplanted segments of Paradise reef. Finally, the construction of tourist facilities, such as Punta Langosta, is representative of the international economic influence in the region known as “Gringolandia”. These policies, represented by the tourist infrastructure currently in place, are contested actions, the most documented and publicized event being the Cozumel Pier Case. However, as numerous newspaper articles reveal, illegal clearing of mangrove forest and near disasters involving adrift cruise ships have also been significant sources of contention against tourist development on Cozumel.

2) How do stakeholders, specifically dive tourists, dive masters, expatriates, activists, and governmental employees; perceive tourist development on Cozumel and how do these various stakeholders perceive the recent increase in development on the island?

Overwhelmingly, responses by interviewees were negative with regard to tourist development on Cozumel. With the exception of one interviewee, all interviewees perceived tourist development to be providing marginal benefits to the local economy while posing significant threats to the island’s environment. Numerous societal and environmental examples, such as denial of access to beach front areas and algal blooms, illustrate the ways in which tourist development has altered the ways in which Cozumelenses navigate through their daily life and the environmental implications tourist development has had on their island’s ecosystems.

3) How has tourist development changed the physical landscape of Cozumel?

Tourist development has altered the physical landscape of Cozumel in four areas. The first area is the urban center of San Miguel. Increased numbers of people moving to Cozumel for potential tourism jobs has expanded the urban area towards the interior of the island. The second area is south of San Miguel. The remotely sensed images in this study illustrate how hotels and accommodations along the coastline of the marine park have increased significantly since 1988. The impact that this may have on Cozumel’s reef ecosystems is not fully documented and is in need of investigation. The third area consists
of areas north of San Miguel. Hotel construction and the development of a golf course in this area are the two primary changes that have occurred in this area since 1988. Finally, when examining the interior portion of Cozumel it is clear that more roads have been built to provide access for freshwater pipelines to underground aquifers.

4) Are the aforementioned stakeholders’ observations of environmental change consistent with the physical changes in the landscape?

While some stakeholder’s observations of environmental change were consistent with the physical changes in the landscape, there were others that were not. Typically, interviewee’s observations were ambiguous regarding specifics about the physical changes taking place on Cozumel as a result of tourist development. Many interviewees would mention that there was a significant amount of tourist development taking place on the island, but they were not clear as to where development was occurring and how much was actually taking place. For instance, one individual noted a concern about shrinking aquifer levels due to the increasing population, but never mentioned the new roads built to gain access to those aquifers which were clear in the remote sensing images. However, in some cases, interviewees mentioned environmental examples that could not be seen at the larger landscape scale, such as algal growth. So while there was not total consistency between interviewee’s observations of environmental change and physical changes taking place on the island, the combination of the two methods, interviewing and remote sensing, provided a more detailed look at the observed and physical changes.

Cozumel’s Future

Cozumel’s tourist infrastructure suffered immensely after the devastating hurricane season of 2005 with hurricanes Emily and Wilma. However, plans are now being reviewed to not only rebuild Cozumel’s coastal infrastructure, but to enlarge it. Reports from internet sources (Wilma Cozumel 2006) claim that Carnival is attempting to add an additional pier to the Puerta Maya pier which will increase cruise ship capacity.

The politicians in Cozumel are in a position to both specialize in dive tourism and restrict its cruise ship arrivals or to cater to the mass tourism that cruise tourism has to offer. Cozumel is already dependent on tourism. It is up to the island’s government as to what
type of tourism they are willing to swear allegiance to. Although there are certainly problems with any type of tourist, Cozumel’s tourist board is in a position to choose which demographic they are willing to accommodate and which one will prove to be more sustainable, not only economically, but socially and environmentally over the long run.

Dive tourists have the advantage of being environmentally conscious, relatively culturally sensitive and moderately affluent. Their tourist dollars are likely to be spent in the location in which they vacation. However, recent studies have shown that divers can damage reefs, especially novices and divers carrying photographic equipment (Tratalos and Austin 2001). Cruise ship tourists, however, have an almost legendary and notorious reputation for being culturally insensitive, oblivious to the concerns of the locales in which they visit, and prone to seek out the familiar, which results in money being spent on cruise line endorsed travel packages, events and retailers (Pattullo 1996). As one interviewee previously noted, if the goal is to specialize in the ecological splendor that this dive location has to offer, it is imperative that there be a concerted sea change in the tourist demographic Cozumel intends to court. To be certain, the cruise industry is not concerned about the locales it frequents, as Wood (2000: 363) points out rather bluntly,

Caribbean destinations must walk a fine line between promoting their uniqueness and trying to meet the expectations and desires of mass tourists, particularly in a context where the President of Carnival Corporation can say, “The limited number of countries and ports offered [in the Caribbean] is not a deterrent to Carnival customers; after all the ship is the attraction, not the port of call” (Dickinson 1993:115).

Cozumel is no exception to any other Caribbean cruise destination in regard to this classification as a second class tourist destination. As the Cozumel news in English (volume 3) reports,

Ship consignment agent Javier Guillermo Clausell warned that local government authorities are way off base when they announce plans to charge an additional port tax, purported to benefit the municipality and its residents. He says they shouldn’t forget that they have competitors like Belize and Roatan, Honduras, and if cruise ship lines decide to create a Grand Cayman-Belize-Roatan route, Cozumel could be left on the outside looking in.
Cozumel needs to seriously consider just what type of tourist they want to be dependent on. Given Cozumel’s past track record and historical circumstances, it would appear as if the people have already chosen, it is merely a factor of whether or not the government is willing to work for the people and not the interests of international, globalized tourist developers.

**Utility of this Study**

The cruise ship industry is one of the fastest growing markets in tourism and has far reaching implications for the regions, such as the Caribbean, Mediterranean and the North Pacific, in which it operates (Trist 1999). Despite the numerous studies which have illuminated the negative societal and environmental impacts of cruise ships (Smith 1988, Pattullo 1996, Wood 2000, Weaver 2003, Davenport and Davenport 2006 to mention only a few), many coastal and island locations still regard the cruise industry as an entity that will aid them in their pursuit of economic prosperity. Currently construction is underway in Caribbean locations such as Cozumel, Mexico and Dominica, that are currently facilitating further tourist development by constructing cruise ship piers to accommodate increased numbers of cruise ships. The further injection of capital by state or private interests into coastal areas, protected or otherwise, impacts the areas in which it occurs through societal, economic and environmental mediums.

This study’s utility lies in the examination of the observations of these phenomena in a location that has dealt with increased tourist development and cruise ship arrivals for roughly two decades. Acting as a case study, despite the clear limitations generalizations have when being applied to other locales, this study hopes to inform a broad range of stakeholders as to the potential risks and pitfalls of catering to the cruise ship industry. Hopefully it has become clear to the reader that the cruise industry wields a disproportionate share of political and economic influence over the destinations in which it is affiliated. But perhaps more importantly, while the cruise ship industry does bring wealth and benefits to a particular segment of the population, oftentimes that wealth is not generated and acquired by the lower echelons of the societies that are dependent upon tourism for jobs. This leads to a deterioration of community cohesiveness and further societal stratification. Furthermore, the environmental ramifications of this pseudo economic progress further debilitates the locations in which these tourist operators function by deteriorating the environment through
the construction of concrete infrastructure, operation of potentially damaging vessels, and violation of environmental laws by discharging wastes, not only in coastal and maritime spaces, but as this study has shown, directly from the pier. The question, as it has been asked by interviewees is “how much is too much?” (M-BODM-1). How much development will be allowed to take place until Cozumel can no longer operate as a tourist destination due to its degraded environmental features that drew tourists in the first place?

The lack of concern by the cruise industry for the spaces in which they operate and the opportunistic ways that the cruise industry navigates through national and international environmental legislation provides an insight into the way in which this study can inform other locations. Cozumel is an example of what can go wrong when a location is developing a cruise tourism economy. With more prudent, bottom-up planning that places a value in the tourist environment and host location it is possible to produce environments that benefit all instead of just the privileged. With a steadfast sense of ecological integrity there is the potential to foster a tourist environment that perpetuates the health of ecosystems rather than the consumption of them. With the broad discipline of geography and the analytical approach of political ecology it is possible to create a map for something better. However, that being said, the status quo of tourist development is not adequate. Nonetheless, the power of hope must prevail over despair and it is with this sentiment that I quote Paul Robbins (2004) who exclaims, “If political ecology has taught us anything, it is that we can do better than that. We can do better than that”.

112
Literature Cited


Eckert, Tom. 22 February 1997. Treasure Island revisited Plot this time has big government, big business and big ships threatening precious coral reef. *Toronto Star Newspapers Ltd.* Toronto, ON.


http://www.wilmacozumel.com/cozumel_piers.htm


