

SC/66a/WW/18

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INTERNATIONAL
WHALING COMMISSION

WHALEWATCHING GROWTH AND SOCIOECONOMIC DEVELOPMENT OF COMMUNITIES IN THE MACHALILLA NATIONAL PARK - ECUADOR

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1. Introduction

Humpback whales (*Megaptera novaeangliae*) migrate from polar feeding areas to tropical breeding areas (Matthews, 1937). Humpbacks found in the waters off Ecuador from June to October and are part of Breeding Stock G (*sensu* IWC, 1998) which extends from Peru to Costa Rica (Acevedo and Smultea, 1995; Flórez-González *et al.*, 1998; Scheidat *et al.*, 2000; Félix & Haase, 2001; Castro & Gonzáles, 2002; Rasmussen *et al.* 2007; Rasmussen *et al.* 2007; Pacheco *et al.* 2009; 2011; Castro *et al.* 2011). The primary humpback concentrations off Ecuador are found along the coast of Esmeraldas in Súa and Atacames; in the marine area of Machalilla National Park including Puerto Lopez, Puerto Cayo and Salango, as well as in the Marino Costera Reserve in Santa Helena.

Ecuador is a small country with coastline that extends over 640km and situated in the southeast Pacific in South America. It has a population of 16,000,000 people occupying 24 different provinces, 6 of which are located on the coastal line of the country and are the home of almost half of the nation's population (INEC, 2013).

Historically, the coastal population of Ecuador has had the highest poverty rates in the nation and has the least amount of environmental resources. The presence of humpback whales has sparked whalewatching tourism, giving the coastal communities new opportunities for social and economical development.

The Machalilla National Park (MNP) was created on June 26, 1979. MNP covers an area of 55,000 hectares in the southern zone of the province of Manabí in Ecuador. MNP includes a coastal area of about 35,000 hectares between Puerto Cayo and the river Ayampe, the Isla de la Plata and Salango Island. Four coastal communities are situated within the area of influence of the MNP: Puerto Cayo, Machalilla, Puerto López and Salango (Scheidat *et al.*, 2000). Although these villages are outside of the Park's limits, the population depends on the marine resources found within the Park. More than 60% of residents rely upon fishing and the commercial trade of fish (Coello 1993). Typical for a coastal community in a developing country the population in the region has increased dramatically over the last few decades (Scheidat *et al.*, 2000).

Whalewatching is one of the fastest growing tourism industries in the world. In 1998, this industry was estimated to be worth US\$1 billion worldwide, and it continues to grow at a 12.1% rate per annum. In 2008 Latin America whale tourism was estimated 886,000 people went whalewatching resulting in US\$278 million in direct and indirect expenditures (Hoyt & Iñiguez, 2008). Ecuador is among the top five countries involved in whalewatching in Latin America (Hoyt & Iñiguez, 2008). MNP supports a growing whalewatching industry that focuses on the Southern Hemisphere humpback whale population. La Isla de La Plata was the first whale-watching site in Ecuador.

2. Materials and Methods

From 1988 - 2012, data was collected daily through income derived from a mandatory tax for each vessel and visitor that entered protected areas. By 2011 the tax fee was \$USD35, although it was reduced to \$USD2 later that year, and was finally abolished in 2012, granting free entrance to this protected area.

Since 2013, the Ministry of Environment has implemented a Digital Tourist Information System (SIB) that gives exact information on the number of visitors, their nationality and age, as well as the number of whalewatching trips per vessel each year. In 2012, the Municipality of Puerto Lopez has also recorded the number of visitors that entered the marine area, implementing a mandatory tax of \$USD1 per visitor. Every month these data are recorded in an Excel worksheet. All visitation records were statistically analyzed in order to evaluate the evolution of visitor arrivals during a 34-year period (1980 to 2014).

In addition, the number of tourism agencies, hotels and restaurants was obtained through the Ministry of Tourism and the Municipality of Puerto Lopez. State investment was confirmed by the National Procurement System of Ecuador (SERCOP) ¹ using records obtained from tourism-related public works in the Municipality of Puerto Lopez financed by the government. Finally, state investment was calculated based on municipal cadaster and municipal appraisal of the Municipal Government of Puerto Lopez.

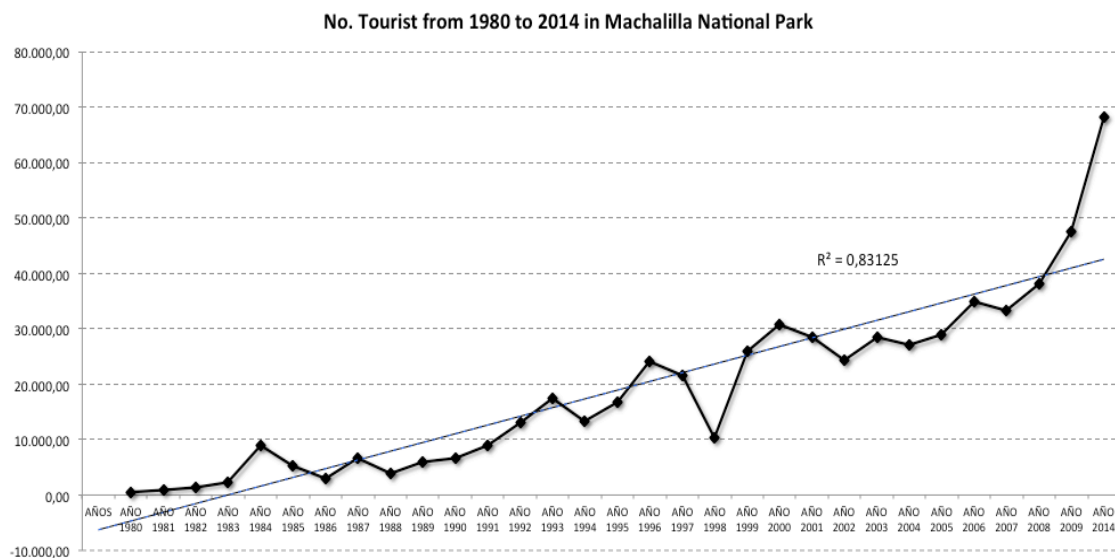
¹<https://www.compraspublicas.gob.ec/ProcesoContratacion/compras/PC/buscarProceso.cpe?sg=1>

3. Results and Discussion

Tourism in Machalilla National Park

From 1994 - 2014 records from MNP and the Municipal Government of Puerto Lopez, recorded 757,000 local and foreign visitors entered the marine area of MNP. Tourism increased from 517 visitors in 1980 to 68,000 visitors in 2014 (Graph 1)

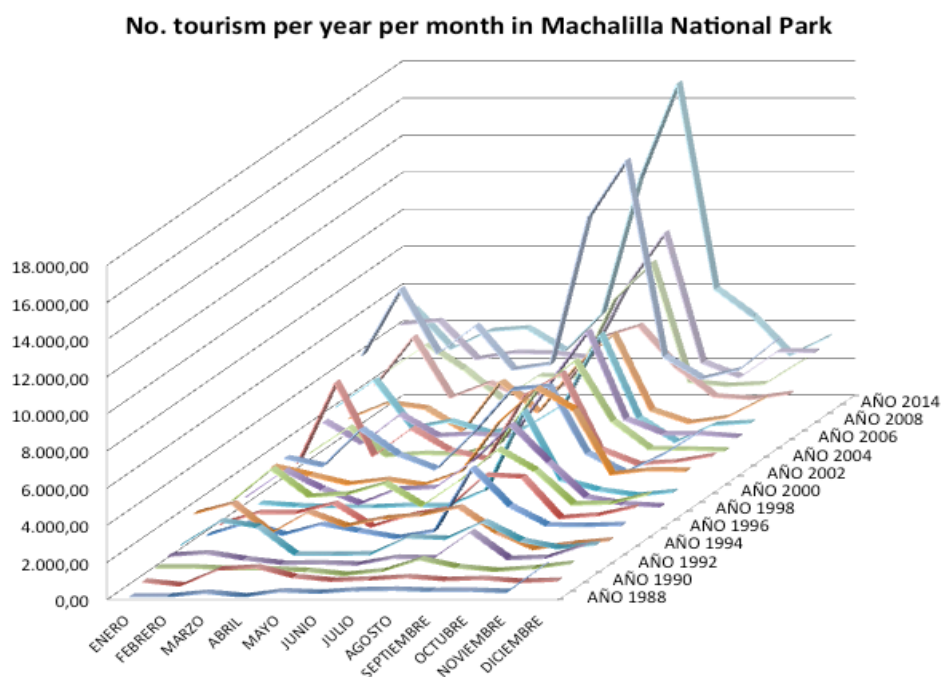
In 2011, 83.211 visitors entered the MNP area, and in 2012 a total of 158,073 visitors were registered, these data are not included in the present analysis since there is uncertainty as to the number of visitors that only entered the marine area of the MNP.



GRAPH 1: Annual Tourism Growth in Puerto López part of Machalilla National Park

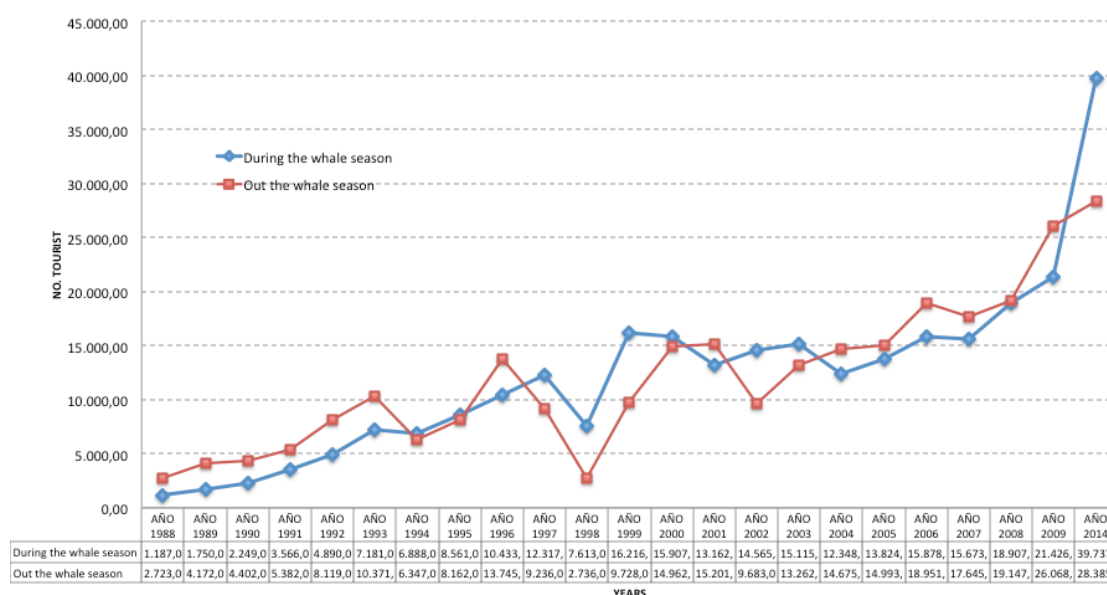
The months with the highest concentration of visitors is June -September, corresponding with the humpback whale breeding season, which is now referred as to the peak visitor season in Puerto Lopez (Graph 2).

In 1998 the number of visitors entering the MNP during the peak visitor season represented just 30% of the total number of visitors entering the MNP for the year. By 1999, visitors numbers increased to a 62% of annual visitors. This increase also corresponds to the same year the Humpback Whale Festival was established in Puerto Lopez (Graph 3).



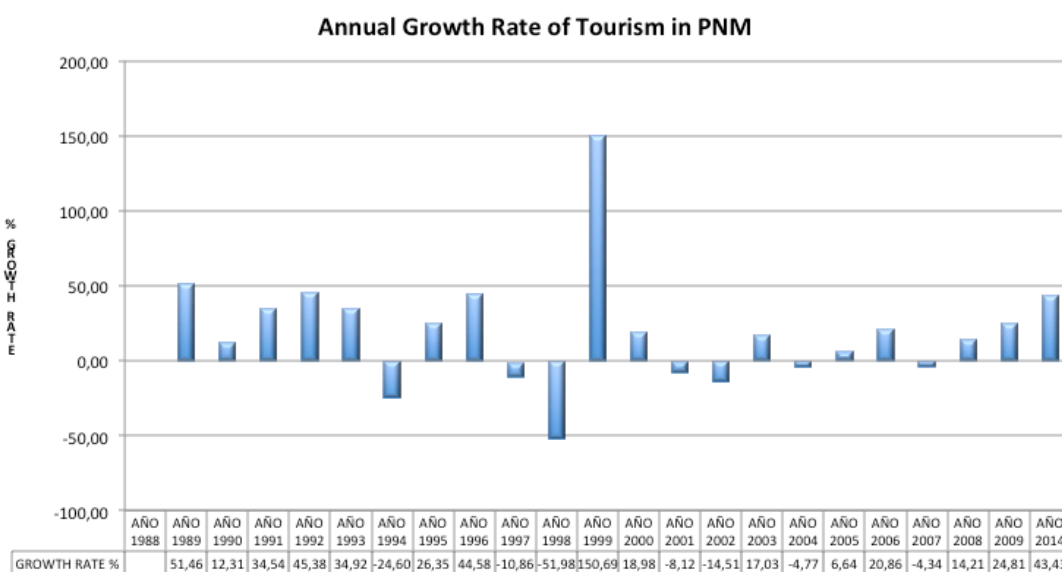
GRAPH 2: Number of tourism per year per month in MNP

Although visitor arrivals during the humpback whale breeding season in 2009 declined to a 45% of the total of visitors of the entire year, the number of visitors entering the MNP in the months of January and February increased (Graph 2). By 2014, the number of visitors entering the MNP during the humpback whale breeding season represented the 58% of visitors for that year (Graph 3).



GRAPH 3: Tourism in and out whale season per year.

In 2014, 64.000 visitors visited the marine area of MNP. For the period between 1988 and 2014, the average growth rate per year was 19%. This represents a 150% increase growth annual rate since 1999, when the Humpback Whale Festival was established. Although there have been years where growth has declined, most likely due to natural disasters (e.g. floods, El Niño phenomena), absence of basic services and tourism facilities (Graph 4), it has been on a steady increased throughout the study period.



GRAPH 4: Annual Growth Rate of Tourism in PNM

Tourism providers in Puerto Lopez

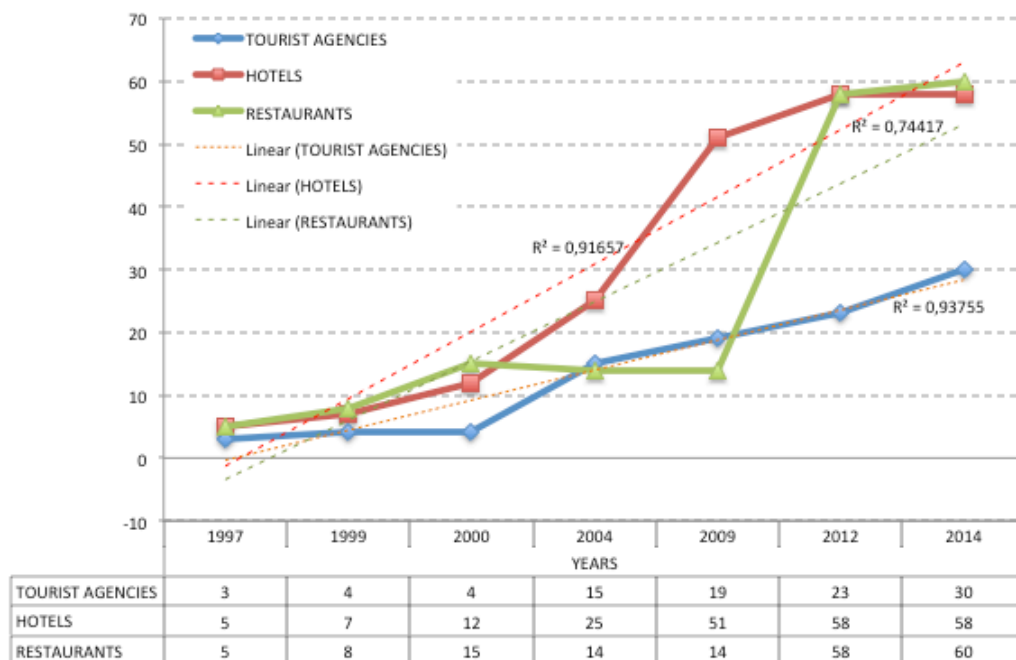
In 2014, there were a total of 155 tourism providers (e.g. tour agencies, hotels, restaurants etc.) in the Municipality of Puerto Lopez. However, coastal communities in the Machalilla National Park are not homogenous. Apart from local families, there has been an increase in new residents, who in most cases are in some way involved in tourism: new hotels, restaurants and tour agencies have been constructed. Hotels, restaurants and other businesses' owners and managers are usually foreigners that have established in Puerto Lopez.

	# Tourism providers in Puerto Lopez						
	1997	1999	2000	2004	2009	2012	2014
TOUR AGENCIES	3	4	4	15	19	23	30
HOTELS	5	7	12	25	51	58	58
RESTAURANTS	5	8	15	14	14	58	60
TOTAL	13	19	31	54	84	139	148

TABLE 1: Number of Tourism providers in Puerto Lopez

In 1997, 13 tour-related businesses were registered in Puerto Lopez, while in 2014 this number increased to 148, including tour agencies, restaurants, other small businesses and hotels with the capacity to house up to 1200 visitors daily. In 2014, 60 new restaurants - managed by non-national residents - opened their doors (Table 1).

The average annual growth rate is 51% with a maximum growth rate of 74% in 2004 and a minimum of 6% in 2014. In the case of tour agencies and hotels, growth has been steady and progressive in relation to the needs of the area. However, the growth of restaurants has not been homogeneous since they tend to open and close constantly, most likely due to illegal sales and low demand in off-peak season (Graph 5).



GRAPH 5: Annual Growth of Tourism Providers in PNM

Economic income

In 2014 the total number of visitors entering the marine area of MNP during the humpback whale season (i.e. June through September) was 39,737. The majority of visitors went to see humpback whales and other cetaceans in the marine area. Direct income (i.e. whale watching tickets) from visitors was estimated at USD\$1,106.175 , while indirect income (i.e. tourism-related expenses such as housing, food, clothing, souvenirs etc.) was estimated at USD\$1,706495 (Table 2).

In a single community of MNP, whalewatching direct and indirect income was estimated to be USD\$2.812.670. These estimates do not include tax levied on every visitor upon entering the marine area of MNP, tourism patents, municipal license taxes, and other direct and indirect

revenues. As an example, in 2009 the income received from MNP entrance fees (before this fee was abolished) was estimated at USD\$290.072. (MAE, 2010). In Continental Ecuador (i.e. not including The Galapagos Island) there are seven coastal communities that support whalewatching operations generating approximately USD\$19.600.000 in 2014.

	DIRECT EXPENSES				INDIRECT EXPENSES				
	No. Visitors in 2014	No. Visitors in 2014 whale season	Coastal tour x pax	Direct expenses in USD	Food X day	Lodging x day	Intern transport	Souvenirs	Indirect Expenses in USD
# Visitors in Coastal Tour *	43.144,0	28.462,0	25,0	711.550,0	10,0		5,0	20,0	996170
# Visitors in Isla de la Plata Tour**	24.978,0	11.275,0	35,0	394.625,0	18,0	20,0	5,0	20,0	710325
SUBTOTAL		39.737,0		1.106.175,0					1.706.495,0
TOTAL		2.812.670,0							

* Coastal Tour is 3 hours for see whales

** Isla de La Plata Tour need 7 hours for see whales and included other activities

TABLE 2: Direct and indirect expenses from June to September generated through whalewatching tours in Puerto Lopez.

Government Support

With the establishment of the first Humpback Whale Festival in 1999, the Puerto Lopez community became a national and international tourism destination and has seen a significant growth in tourism since. This increase in tourism is primarily due to the presence of humpback whales, which have become the main tourism attraction off the Ecuadorian coast. Due to the rapid growth of visitors communities undertook major capacity building efforts in 2007, resulting in a change in public policies and infrastructure investments. The net result , positively impacted the growth of tourism in the area and created new and better opportunities for local residents to improve their quality of their lives.

Ecuador has generated a number of public policies that support the protection of biodiversity along with the optimization of natural resources and socioeconomic development of coastal communities. Since ecotourism is a driving force in promoting economic development in Ecuador, new policies implemented since 2007 not only help regulate the whalewatching industry in the country, but to also supported and promoted conservation of humpback whales and other cetaceans present in the marine region of the country. New policies include:

1. Different versions of the National Plan Buen Vivir (i.e. Good Living), which objective No. 7 is to guarantee the rights of nature and promote environmental, territorial and global sustainability.

2. Participation of Ecuador in the International Whaling Commission (IWC) in 2007². Ecuador re-enters the IWC to support the protection of whales and maintain the moratorium on commercial whaling. Ecuadorian participation was due to its important role in humpback whale tourism and the request of coastal communities and different national and international NGO's to integrate the country in the IWC meetings.
3. In 2008, the Constitution of Ecuador guarantees the Rights of Nature, adopting indigenous traditions, knowledge, and different concepts of *Nature*. It also includes environmental management in policies and regulations, and establishes the right of Nature to Restoration.
4. In 2008, The Ministry of Environment and the Ministry of Tourism declare June 22 the national Whale Day³.
5. In 2009, The Comprehensive Regional Intervention Program (PITI Puerto Lopez)⁴ starts in Puerto Lopez, with the objective of restoring the Municipality of Puerto Lopez (i.e. Canton Puerto Lopez) to impulse tourism and economic development in the region. This also starts the Public and Private Investment Plan (PPIP) based on the main necessities of the local community. The PPIP impules economical development through the creation of small businesses as well as the construction of tourism attractions, banks, a local pier and others.
6. In 2013, the National Government and the Ministry of the Tourism through the decree No. 1521, May 2013, declare Puerto Lopez a Tourism Protected Area⁵. The decree establishes regional regulations and also declares areas for conservation and visitor promotion.
7. In 2014, the Ministries of Environment, Tourism, Public Works, and National Defense sign the Inter-ministerial Agreement for the Regulation of Whale Watching Tourism⁶. To replace the 2002 Whale Watching Regulation. The Agreement regulates cetacean watching tourism in Ecuador.

Since 2007, the National Government of Ecuador has invested over USD\$35,213,000 (Table 2) in infrastructure projects in the Municipality of Puerto Lopez. One of the most outstanding projects was the maintenance and reconstruction of the main roads along the coast of Ecuador, including La Ruta del Spondylus⁷, a route that starts in Peru and goes along the coast of

² <http://www.cancilleria.gob.ec/es/defensa-de-las-especies-amenazadas/>

³ <http://www.eluniverso.com/2008/06/23/0001/12/01934C3C8A464694A72FAF98F8C82417.html>

⁴ <http://www.eldiario.ec/noticias-manabi-ecuador/264648-usd-68-millones-en-proyectos-piti/>

⁵ <http://www.turismo.gob.ec/puerto-lopez-declarada-area-turistica-protegida/>

⁶ <http://www.turismo.gob.ec/ecuador-expide-reglamento-para-observacion-de-ballenas-y-delfines/>

⁷ <http://www.turismo.gob.ec/guia-para-observar-ballenas-en-la-ruta-del-spondylus/>

Ecuador, offering beautiful landscape and shore-based whalewatching. Other infrastructure projects are still ongoing in the Municipality of Puerto Lopez and in the marine area of the MNP.

OBRAS INFRAESTRUCTURA	\$ USD	
TOURISM PIER	1,200,000	FINISHED
CENTRAL PARK PUERTO LOPEZ	300,000	FINISHED
LINEAL PARK	800,000	FINISHED
TURISM LOCAL MARKET	2,000,000	FINISHED
BUS TERMINAL	3,500,000	FINISHED
BOARDWALK PUERTO LOPEZ ⁸	8,593,000	ONGOING
BIRD WATCHING AREAS		PENDING
MUNICIPAL HOUSE		PENDING
SEWERAGE	2600,000	FINISHED
DRINKABLE WATER ⁹	16,000,000	FINISHED
FISHING PIER		PENDING
ARCHEOLOGICAL MUSEUM MNP	20,000	FINISHED
RECONSTRUCTION OF AGUA BLANCA'S MUSEUM	20,000	FINISHED
TOURISM INFRAESTRUCTURE ISLA PLATA	100,000	FINISHED
TURTLE INFORMATION CENTER	20,000	ONGOING
WHALE MONUMENT		ONGOING
FISHERMAN MONUMENT		ONGOING
TOURISM INFORMATION CENTER	10,000	FINISHED
LIFEGUARD TOWER	20,000	FINISHED
PUBLIC BATHROOMS	30,000	FINISHED
TOTAL INVERSION 2009-2014	\$35,213,000	

TABLE 3 Government Support from 2009-2014 in Puerto Lopez.

Currently, Puerto Lopez, the main community of MNP has 30 tour operators, 60 restaurants and 58 visitor accommodations. The National Government has invested in infrastructure projects such as the construction of the pier, boardwalk, markets, bus station and other infrastructure projects totaling USD\$35,213,000. Private investment is estimated to be another USD\$10,000,000, including construction of banks, commissaries and accommodations. A fishing village that was destined to poverty and misery is now a thriving vibrant growing community due in large part to the presence of humpback whales and the cooperative efforts of the local residents to ensure their protection and survival.

⁸ <http://www.habitatyvivienda.gob.ec/malecon-puerto-lopez-2014/>

⁹ <http://www.agua.gob.ec/correa-16-millones-de-dolares-se-invirtio-para-el-sistema-de-agua-potable-ayampe-puerto-lopez-machalilla/>

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The researchers are grateful for the support of Pacific Whale Foundation PWF, the tourism operators in special Palo Santo Travel, Bosque Marino Tour and the Governmental institutions as the Minister of the Environment of Ecuador and Local Government to Puerto Lopez. And we appreciate the contributions for participate in the IWC Scientific Committee to PWF, Bill Rossiter CSI and DJ AWI, thank you so much. Finally thank you for our colleague Wendy Gómez to enrich the document and finally appreciate the patience and love of our families.



TOURISM PIER IN PUERTO LOPEZ, 2013



CHILDREN PARK IN PUERTO LOPEZ, WHALE MONUMENT IN THE CENTER, 2014



*TERMINAL BUS PUERTO LOPEZ, WITH WHALE MURAL INSIDE, 2013 AND
THE TURISM LOCAL MARKE IN PUERTO LOPEZ, 2013*

