



Photo: Jacintha Castora Photography

Transporting passengers by launches in Galapagos

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Introduction

Inter-island movement of people within Galapagos has greatly increased in recent years, due to a doubling of the population, increased tourism, and the associated transformation of the insular lifestyle. Although the biological consequences of increased boat traffic within the archipelago has been studied (Roque-Albelo *et al.*, 2008; Causton *et al.*, 2008), little is known about the socioeconomic aspects of maritime transportation. Our objective was to describe and evaluate current human movement among the populated islands of the archipelago via a fleet of speedboats, locally called launches.

This system of maritime transportation has evolved rapidly. Until 2004, trips between islands were available weekly aboard two public boats and a few launches (Zapata, 2005). Today, transportation options have increased significantly in number and quality, as the boats have been replaced by much faster launches. The analysis of this popular means of transportation contributes to an understanding of the kind of development that is occurring in Galapagos and its consequences for the conservation of the archipelago. This article presents the results of a study completed between February and May of 2009 as part of the Geographical Index Project carried out by the Charles Darwin Foundation.

Methods

To better understand the organization of the fleet of inter-island launches, 23 captains and/or owners of launches were asked to complete a questionnaire. Additionally, interviews were conducted with the Port Captains of Santa Cruz, Isabela, and San Cristóbal, the commander of the Second Naval Zone, and personnel of the

National Institute of Galapagos (INGALA) and the Inspection and Quarantine System for Galapagos (SICGAL). Finally, interviews were conducted with 166 residents of Galapagos (77 in Santa Cruz, 49 in San Cristóbal, and 40 in Isabela) and 41 tourists to study their movements within the archipelago, their use of launches, and their opinions regarding this type of transport. To complement these quantitative methods, we also observed launch operations in the ports of the four inhabited islands and traveled in launches.

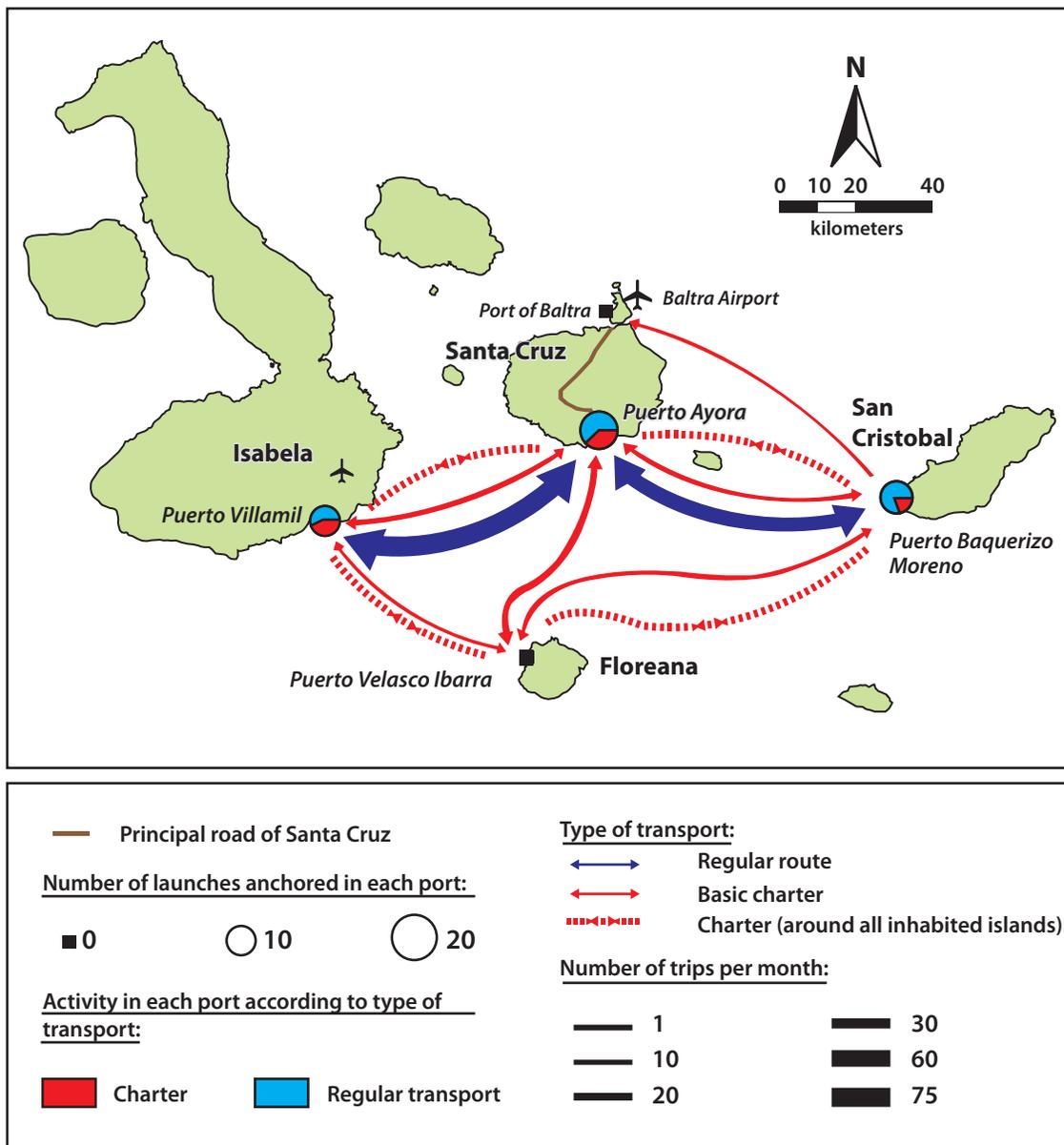
Results

Organization of interisland transport

According to the Ecuadorian Navy, 35 launches offered regular passenger transportation in Galapagos

in May 2009, with seven additional launches making sporadic trips. However, the Navy's lists are not up to date; of 50 registered boats, 13 were listed as "inoperative" although they continue to function. Comparing this information with observations we made in each port, we estimate that the maximum number of launches providing inter-island transportation is 44 (20 in Puerto Ayora, Santa Cruz; 14 in Puerto Baquerizo Moreno, San Cristóbal; and 10 in Puerto Villamil, Isabela). There are three associations of launch owners, one in each of the main ports. Only 20% of the owners operate their own vessels; the others employ a captain and crewman, who are generally paid daily for one round trip.

There are various routes and types of inter-island transport. The most common type is the regularly scheduled trips connecting the ports of the three



county seats of Galapagos. Launches leave Puerto Ayora every day in the early afternoon for Puerto Baquerizo Moreno and Puerto Villamil, and return to Santa Cruz the next morning (Map 1). This system provides daily connections, via Santa Cruz, between Isabela (where no national flights arrive) and Baltra, the principal airport in the archipelago.

The second type of transport by launch consists of charters contracted by residents, institutions, or tourism agencies or hotels for their clients. These trips might be “port to port,” or might cover the four inhabited islands with the passengers spending the night on each island (Map 1).

The type of transport and the frequency of trips differ among the islands. Santa Cruz is the hub of the launch network. It is from this port that the majority of passengers travel to both Isabela and San Cristóbal using regularly scheduled service. In terms of charters, Floreana is the most common destination. The schedules and routes of the launch system appear to be directly related to the infrastructure (airports) on each island and scheduled flights to the continent.

Evolution of transportation by launches

Although transport by launch developed during the last decade, it is nearly impossible to document its evolution. The only register that we were able to obtain from the Port Captaincy of Puerto Ayora indicated that there were seven launches in Santa Cruz in 2004 and today the number is 20 (two of which began operation during the months of this study).

The fleet of launches is growing not only in terms of number but also the size of engines used. Today launch engines average 450 horsepower. Boats are able to make the trip between the major ports of the archipelago in approximately two hours, when only a

few years ago it took at least five hours to travel from Puerto Ayora to Puerto Villamil aboard Isabela’s municipal boat, the Estrella del Mar. The length of the trip may be shortened even more given that 40% of launch owners have indicated that they want to increase the size of their engines. It should be noted that during the last two years, 55% of the launch owners purchased more powerful engines.

Launches have an average authorized capacity of 20 passengers. They generally travel full when contracted as charters, but this is not always the case for the regularly scheduled trips. For example, the 30 launches in which we conducted head counts carried an average of 15 passengers. However, of the five launches we traveled on during the study, three traveled over capacity. The excess of passengers is due to a lack of coordination and last minute ticket sales. Since the Navy rarely monitors the launches and more passengers result in more income, owners often do not respect the legal passenger limits. If Navy personnel do observe a launch with too many passengers, the owner is supposed to pay a fine. In reality, fines are often not levied by the Navy (which provides permits to the launches) because of arrangements with boat owners, such as allowing Navy personnel to travel for free.

Users

Interviewing tourists proved difficult. Many declined to participate because they did not have time or were too tired from their trip. However, from those interviewed it was possible to determine that their perceptions of this means of transportation are different than those who live in Galapagos (Table 1).

The research was carried out in March-April when the seas are most calm. Transport by launch is considered more comfortable by residents than by tourists.

Table 1. Comparison in the perception of their trip by launch between tourists and residents.

Question	Residents (N=166)			Tourists (N= 41)		
	Yes (%)	No (%)	NR (%)	Yes (%)	No (%)	NR (%)
<i>Is the trip by launch comfortable?</i>	81	12	7	44	27	29
<i>In the launch, is the noise a problem?</i>	52	42	6	46	30	24
<i>In the launch, do you travel relaxed?</i>	59	33	8	85	12	3
<i>In the launch, are you able to observe views and wildlife?</i>	70	22	8	44	47	9
<i>Would you have liked to have seen more marine animals?</i>	82	8	10	74	23	3
<i>Are you satisfied with this type of trip between islands?</i>	75	18	7	65	35	0
<i>Is this a better service than the old boats?*</i>	57	36	7	-	-	-



Photo: Etienne Ouvrard

Tourists appear to expect certain comforts that residents do not require. The opposite is true when asking about safety. For some local residents the trips by sea seemed to be a kind of “test” – they were simply happy to arrive safely (28% of residents spontaneously reported being seasick, compared to only 5% of tourists).

Interviews reveal that residents appeared more attentive to the marine environment while traveling on launches than tourists, who generally come to Galapagos to view wildlife. Some of the tourists interviewed explained that they were less concerned about viewing wildlife aboard the launch because they had the opportunity to do so in the national park. However, the Park’s last management plan high-

lighted the fact that conservation problems can arise when the public thinks differently about areas dedicated to tourism, where certain activities are restricted or prohibited, than they do about areas open for general public use (such as the maritime routes between the inhabited islands), where there are few restrictions on human activity. According to the launch captains, in order to offer increased comfort, boats are becoming more and more enclosed, making it more difficult to observe birds, marine mammals, or even the surrounding ocean. In the absence of regulations, they are also continuing to increase the speed of their vessels to better compete with the small planes that transport passengers between islands (Table 2).

Table 2. Type of transport preferentially used by residents.

Type of transport	%	Reasons mentioned
Launch	60	Cheapest form of transport (71%)
Small plane	22	Speed (77%); Comfort (16%)
No preference	6	Choose based on urgency and schedules
Work boat	2	Profession (fisher, seaman, etc.)
No answer / never	10	-

The number of islands visited by a Galapagos resident tends to increase with income and numbers of years living in the island (Figure 1). However, there are notable exceptions: some residents interviewed have

never traveled to other islands of the archipelago although they have lived in Galapagos for more than 15 years.

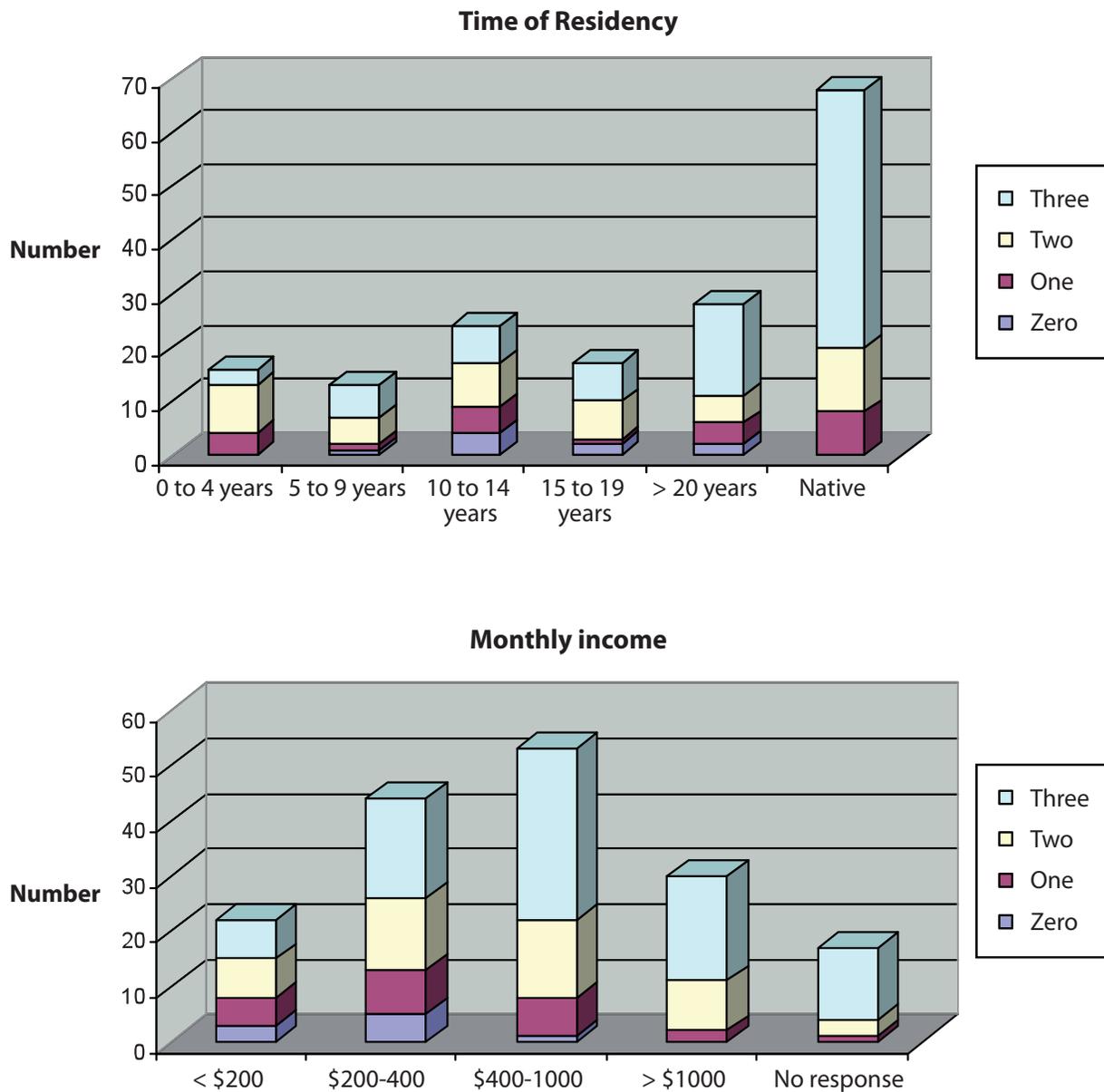
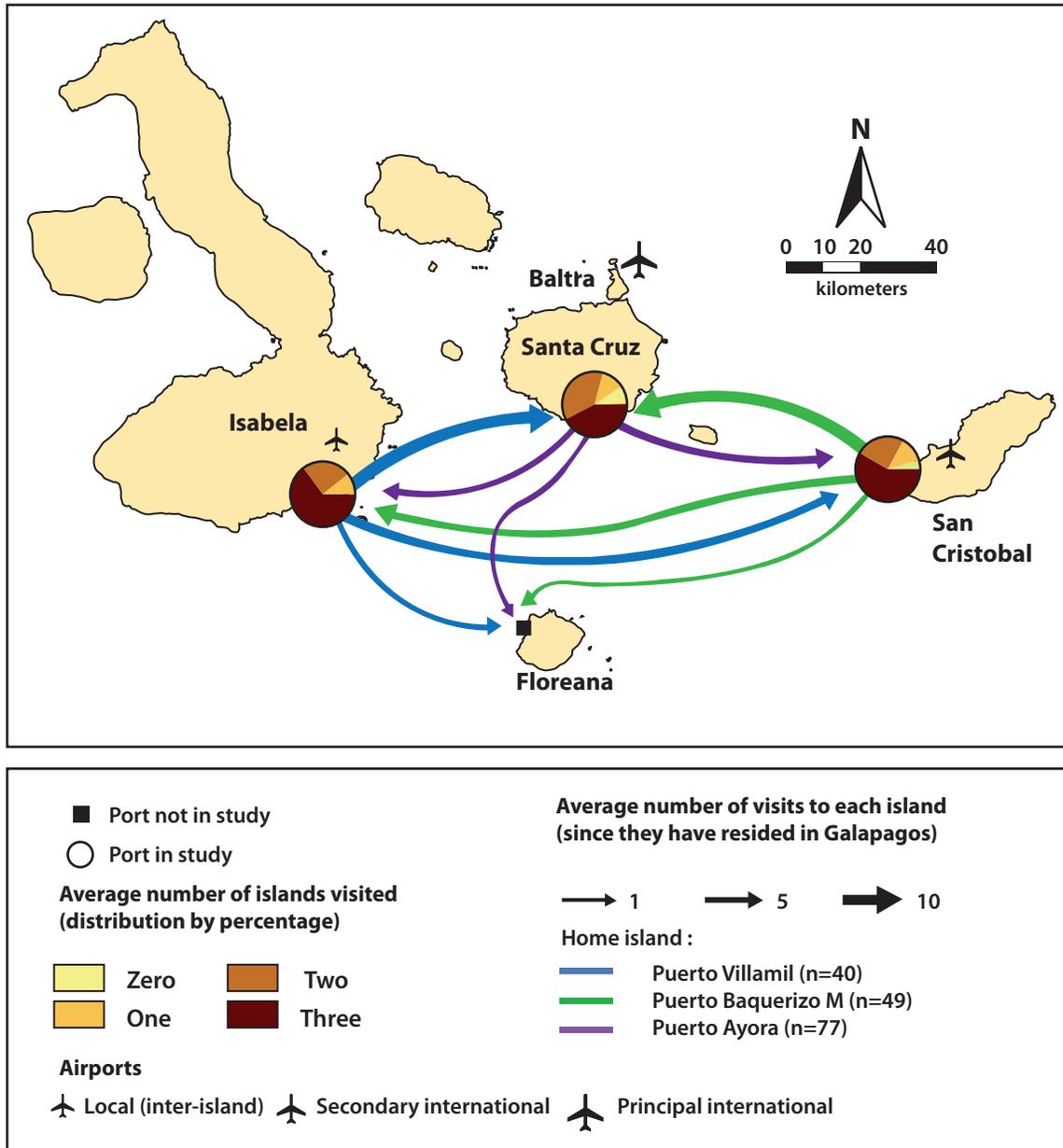


Figure 1. Number of islands visited by years of residency in Galapagos (above) and income (below). Source: Interviews of residents (N=166).

Galapagos residents tend to travel infrequently to other islands in the archipelago. However, inhabitants of Isabela and Floreana must travel to either Santa Cruz or San Cristóbal before continuing to the continent (Map 2). Also, residents of Santa Cruz, Isabela,

and Floreana must make occasional trips to Puerto Baquerizo Moreno, the capital of the archipelago, for various administrative matters. Even so, Puerto Ayora is the port most visited by residents of Galapagos.



Map 2. Movement of residents among the inhabited islands of Galapagos.
Source: Interviews with residents (N=166).

Effectiveness of the quarantine system

Launches carrying passengers and cargo among the islands create a potential network for dispersing invasive species—one of the greatest threats to the conservation of Galapagos. In the four inhabited ports of the archipelago, the personnel of the Inspection and Quarantine System for Galapagos (SICGAL) inspect launches in an attempt to limit the spread of invasive species. Zapata (2007) showed that due to budget reductions that resulted in a decrease in the number of inspectors, SICGAL has been unable to effectively reduce the entrance of introduced species to Galapagos. This situation continues to worsen as the number of passenger and cargo trips increases.

Residents and tourists traveling on launches were asked about the effectiveness of the quarantine system (Table 3). Approximately two thirds of residents responded that SICGAL was effective at achieving its goal of avoiding the introduction of invasive species. Tourists believed that the partial inspection of their bags was insufficient. While 25% of tourists reported that their luggage had not been examined, only 13% of residents did.

It is common to observe launches departing port without having been inspected by SICGAL. Inspectors working in SICGAL are aware of this situation and explain that it is due to a lack of personnel. Another factor is that with the exception of Puerto Ayora, SICGAL offices are located away from the docks, making it

Table 3. Effectiveness of the quarantine system (SICGAL) according to passengers on launches.

Question	Answer	Residents (%)	Tourists (%)
<i>Before embarking on the launch, was your luggage inspected by SICGAL? Do you think that the inspection was effective?</i>	Yes	65	38
	No	31	59
	No answer	4	3
	Total	100	100
<i>Have you ever transported something to another island without SICGAL seeing it?</i>	Yes	9	18
	No	83	82
	No answer	8	0
	Total	100	100

more difficult for personnel to observe the movement of boats, cargo, and passengers.

Discussion

Currently inter-island transport using launches is unregulated, except for limited Navy and SICGAL supervision. There are serious safety issues associated with launch transport in Galapagos: insufficient life vests, boats traveling at excess capacity and excessive speeds that are dangerous in rough seas, the absence of a life raft onboard, etc. The frequency of incidents (one of the authors was stranded aboard a launch that had run out of fuel) points to the dangers inherent in this form of transportation. The Navy, the National Park Service, the municipalities, and INGALA are all entities that could play a role in ensuring the safety of launch passengers. Will it be necessary for a serious accident to occur before implementing oversight and basic safety measures?

One could argue that the demand to connect Galapagos with the mainland, rather than internal activity within the islands, drives the growth and organization of this form of transportation. Launch schedules are based on flight schedules to and from

the continent. For example, it is impossible to leave Isabela on a launch later than 7 AM (the time it is necessary to leave Isabela for a flight to the mainland). Puerto Ayora serves as a hub for launch transportation, and is the source of the largest number of boats and passengers. And although Puerto Baquerizo Moreno plays an important role in this system, the launch owners of Villamil obtain greater benefit by using their launches for charters and tourism activities.

Additional studies of other marine transportation to Galapagos (cargo ships, etc.) are needed to complement this analysis and to provide a broader understanding of the threats to the national park (such as invasive species) and the lifestyle of the insular population.

Conclusions

A number of indicators from this study provide a baseline to understand future trends and the impact of launches on Galapagos. These indicators have been integrated into the Geographic Index of Galapagos Project of the Charles Darwin Foundation.

Table 4. Indicators to measure the evolution in the impacts generated by launches in Galapagos.

Variable	Value in 2009
Number of launches in Galapagos	42
Number of regular monthly trips between Santa Cruz and San Cristóbal	60
Number of regular monthly trips between Santa Cruz and Isabela	75
Total number of monthly charters in Galapagos	110
Fuel consumption per trip between Santa Cruz and Isabela (in gallons)	60
Average horsepower of the launches (in horsepower)	450



Photo: Emmanuel Cléder

Galapagos institutions should actively regulate this form of transportation and review its organization and operation. Safety issues must be dealt with as soon as possible, including:

- Insufficient number of life vests,
- Overloaded launches, and
- High speeds that could result in boats sinking in high seas.

In addition to fuel consumption and associated air and water pollution, launches pose other potential direct impacts for insular ecosystems, such as the transportation of uninspected cargo that could contain invasive species, collisions with sea turtles, etc., and indirect impacts, such as changes in the relationship of Galapagos residents to the natural world in which they live.

Finally, re-instituting a municipal transportation system between the inhabited islands could offer an attractive alternative for tourists (allowing better observation of marine species, vistas, etc.) and provide Galapagos residents with a low-cost option to the launches. A municipal maritime transportation system could also help to reduce pollution, increase marine safety, and generally reduce the impacts that launches have on the geographic space and environment of Galapagos. A public system for inter-island

transport could also generate additional income for the government, which could in turn be invested in the conservation of the Galapagos National Park.