

GALAPAGOS REPORT 2013-2014

HUMAN SYSTEMS

MAINTAINING THE ENVIRONMENTAL QUALITY OF GALAPAGOS: A COMMITMENT OF ALL

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How to cite this article:

Carrión-Tacuri J, L Mora A, and D Lara S. 2015. Maintaining the environmental quality of Galapagos: A commitment of all. Pp. 35-39. In: Galapagos Report 2013-2014. GNPD, GCREG, CDF and GC. Puerto Ayora, Galapagos, Ecuador.

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The **Galapagos National Park Directorate** has its headquarters in Puerto Ayora, Santa Cruz Island, Galapagos and is the Ecuadorian governmental institution responsible for the administration and management of the protected areas of Galapagos.

The **Governing Council of Galapagos** has its headquarters in Puerto Baquerizo Moreno, San Cristóbal Island, and is the Ecuadorian governmental institution responsible for planning and the administration of the province.

The **Charles Darwin Foundation**, an international non-profit organization registered in Belgium, operates the Charles Darwin Research Station in Puerto Ayora, Santa Cruz Island, Galapagos.

Galapagos Conservancy, based in Fairfax, Virginia USA, is the only US non-profit organization focused exclusively on the long-term protection of the Galapagos Archipelago.



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Maintaining the environmental quality of Galapagos: A commitment of all

Jorge Carrión-Tacuri, Luis Mora Andrade and Daniel Lara Solís

Galapagos National Park Directorate

Introduction

The conservation and responsible use of the natural resources of the Galapagos National Park and the Galapagos Marine Reserve are the responsibility of the Ministry of the Environment through the Galapagos National Park Directorate (ME-GNPD). Three percent of the land area of the Galapagos Islands is occupied by a resident population with one of the highest growth rates in the country. The population, which depends largely on environmental services generated by the protected areas of Galapagos, produces a wide range of impacts, needs, and pressures on these ecosystems and significant challenges for ecosystem managers.

The increase in Galapagos tourism also means an increase in infrastructure to expand capacity (hotels, boats, transportation, access to visitor sites, basic services, etc.). This, in turn, requires an increase throughout the province of commercial, production, and extractive activities (cargo shipments to Galapagos, crops, fisheries, and requirements for sand, gravel, and crushed rock, etc.), which without proper planning and structure can lead to the deterioration of environmental quality in populated and protected areas.

The National Park and the Marine Reserve are protected areas that are unique in terms of their isolation, biodiversity, conservation status, and the environmental services they provide for the human population living in the province. The new Management Plan for the Protected Areas of Galapagos for Good Living (DPNG, 2014) lays out integrated management strategies for both protected and populated areas of Galapagos to protect these environmental services.

In Ministerial Agreement (MA) 065, issued on July 17, 2009, the Minister of the Environment authorized the Director of the Galapagos National Park (GNP) to exercise certain powers regarding environmental quality within the jurisdiction of the Galapagos National Park Directorate (GNPD), specifically the issuance of Intersection Certificates indicating whether a given project intersects with a protected area and review of environmental permits and environmental impact studies. Likewise, in MA 100, published in the Official Registry No. 766 on August 14, 2012, the Minister of the Environment authorized the Director of the GNP to issue environmental permits on behalf of the Ministry, except in the case of projects considered of strategic or national interest. These two ministerial agreements were later repealed and the powers related to environmental quality, issuance of environmental permits, and oversight, have been unified in MA 268 published in the Official Registry No. 359, on October 22, 2014.

In addition, in MA 256, published on August 20, 2014, the Minister authorized the Director of the GNP to exercise the functions of a Natural Heritage Unit of the Ministry, which includes developing technical reports and approving feasibility studies related to projects that intersect with the protected areas of Galapagos.

Environmental regulations related to projects, construction, or other activities in Galapagos and in mainland Ecuador are based on the Catalogue of National Environmental Categorization (CCAN – Spanish acronym) issued through MA 006 on February 18, 2014.

This framework was established based on the potential risk or impact that different activities could have on the social and natural environment (Table 1). These regulations are implemented through the Special System for Environmental Information (SUIA - Spanish acronym) of the Ministry of the Environment.

This article aims to analyze the progress of the GNPD in implementing the powers delegated by the Ministry of the Environment to regulate projects, construction, and other activities in the Galapagos province and to mitigate their impacts.

Table 1. Categories established by the Ministry of the Environment to environmentally regulate all activities carried out in Ecuador, considering the impact or risk of the activities for the environment and human health. Source: Ministerial Agreement 006-2014.

CATEGORY	IMPACT / RISCK	INSTRUMENT	ADMINISTRATIVE AUTHORIZATION
I	Insignificant	Environmental register	Environmental Registration Certificate
II	Low	Environmental data sheet and environmental management plan	Environmental Permit Category II
III	Moderate	Declaration of environmental impact and environmental management plan	Environmental Permit Category III
IV	High	Environmental impact study and environmental management plan	Environmental Permit Category IV

Methods

This article reviews the Ministerial Agreements mentioned previously, as well as the records and databases associated with the Process of Environmental Quality of the Environmental Management Directorate of the GNPD, in order to determine the GNPD's progress in the emission of environmental permits in the province of Galapagos.

For each project, the level of compliance associated with an environmental permit is calculated as a percent, based

on assessments of compliance for each obligation. Levels of compliance with environmental management plans (measured in percent) correspond to inspections carried out in 2014.

Environmental regularization and control in Galapagos

The Ministry of the Environment issued 12 environmental permits for projects in Galapagos during the period 2002-09, prior to delegating this authority to the GNPD (Table 2).

Table 2. Number of environmental permits issued per year for projects in Galapagos (2002-2014). Source: Environmental quality GNPD.

Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
I	0	0	0	0	0	0	0	0	0	0	0	0	7	7
II	0	0	0	0	0	0	0	0	1	0	2	15	21	39
III	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IV	1	0	1	1	3	1	2	11	8	12	15	21	12	88
TOTAL	1	0	1	1	3	1	2	11	9	12	17	36	40	134

The number of environmental permits issued has increased exponentially since the Ministry of Environment delegated this responsibility to the GNPD, with a total of

134 issued as of 2014, including seven Category I permits (Figure 1).

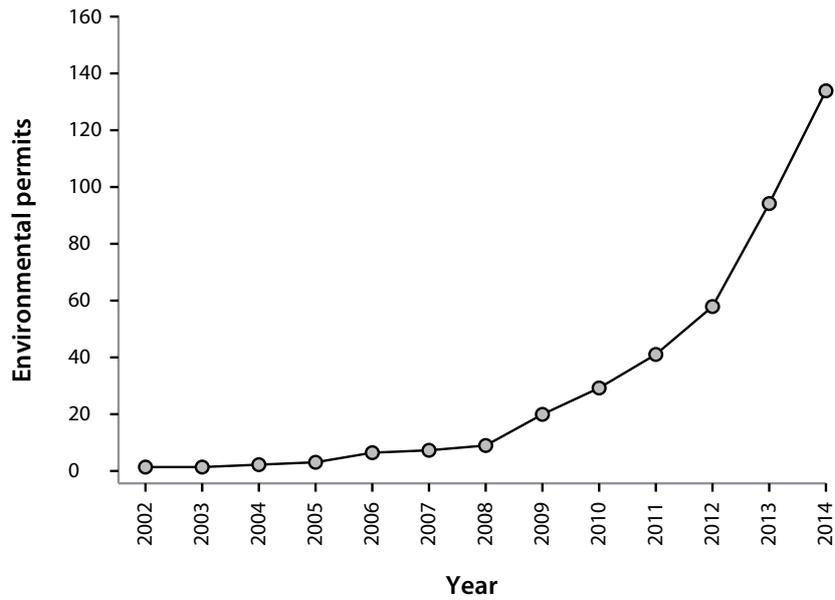


Figure 1. Annual increase in the number of environmental permits issued for development projects in Galapagos; GNPD took over the power of issuing permits in 2009. Source: Environmental Quality GNPD.

Environmental permits are issued in Galapagos in nine well-defined sectors. The majority of permits are issued for the tourism boat sector (45), followed by hotels (14), telecommunications (14), sanitation (13), electrical

projects (7), airport (4), hydrocarbons (4), hazardous and special waste management (4), and other infrastructure and roads (29; Figure 2).

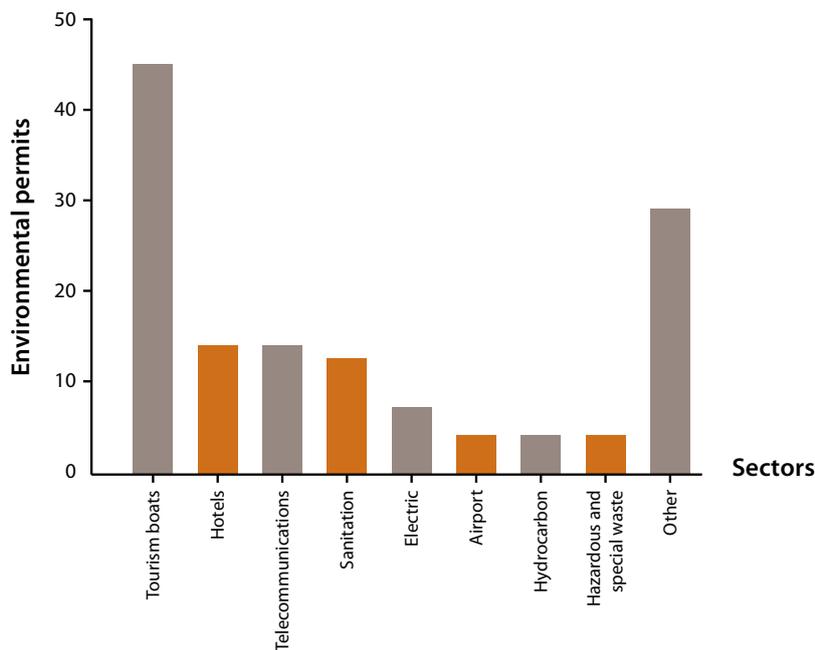


Figure 2. Breakdown by sector of environmental permits issued to development projects in Galapagos from 2002-14. Source: Environmental Quality GNPD.

The increase in the number of environmental permits requires greater environmental oversight and control of compliance with the permits and management plans, which the GNPD exercises through preventive and

compliance inspections, responding to environmental complaints, and reviewing self-monitoring reports and environmental audits. The most common obligations associated with environmental permits include: submission

of environmental audits; submission of quarterly, biannual, or annual self-monitoring reports (frequency depends on the permit category); maintaining a valid compliance insurance policy for the execution of the environmental management plan; and annual renewal payments. The percentage compliance for each permit and plan is based on the analysis of documentation submitted to the GNPD and the results of on-site inspections.

From 2012-14, compliance with environmental permit obligations increased annually from 33.5% in 2012, to

41.7% in 2013, and 51.0% in 2014. Beginning in 2014, an inspection schedule was implemented to verify the level of compliance with the environmental management plans. The results of 33 inspections revealed an average compliance of 83.9%.

The hydrocarbon sector demonstrated the highest level of compliance with environmental management plans, followed by the tourism boat and hotel sectors. The sanitation sector had the lowest level of compliance (Table 3).

Table 3. Sectors with permitted projects and average percentage of compliance with the environmental management plan. Source: Environmental Quality GNPD.

Sector	Inspections completed	Projects with Environmental Permit	Compliance with EMP (%)
Hydrocarbon	1	4	90,0
Hotel	2	14	89,0
Tourism boat	21	45	88,6
Telecommunications	1	14	87,5
Airport	2	4	82,8
Sanitation	6	13	64,6

Conclusions and recommendations

The environmental management plan associated with the environmental permit issued for each project helps to ensure that a project adheres to environmental regulations and guidelines, and prevents or mitigates negative impacts while maximizing positive effects. Despite resistance by certain sectors, the GNPD is fulfilling the responsibilities delegated to it by the Ministry of the Environment, as reflected by the exponential increase in the number of environmental permits granted. This delegation of authority allows the environmental authority in Galapagos, the GNPD, to maintain greater control over projects that intersect with protected areas, as well as those that pose environmental risks to the same, and with potential impacts on the good living of the resident population.

The hydrocarbon, hotel, and tourism boat sectors have the highest level of compliance with environmental management plans, which translates into eco-friendly project execution that benefits Galapagos ecosystems and their users. The sanitation sector (projects related to sewage, drinking water, etc.) have the lowest levels of compliance, resulting in increased levels of contamination (MAE-DPNG, 2014), which affects environmental quality of ecosystems and human health.

Article 14 of the Ecuadorian Constitution *recognizes the right of the population to live in a healthy and ecologically-balanced environment that guarantees sustainability and good living, **sumak kawsay***. This is the foundation for policies, laws, rules, and regulations

aimed at preserving the natural environment and its environmental services for the benefit of society.

Maintaining the environmental quality of the ecosystems of the protected areas of Galapagos is essential for preserving biodiversity and guaranteeing good living, as stipulated in the Ecuadorian Constitution. However, maintaining environmental quality requires collaborative efforts of those who manage the archipelago and the users of services generated by Galapagos ecosystems.

Based on this analysis, we recommend the following:

1. Advise/train project leaders regarding the process of obtaining environmental permits in order to speed up the process and increase the level of compliance with environmental management plans.
2. Prioritize environmental oversight of activities, focusing on projects with low levels of compliance with their environmental management plans.
3. Establish incentives that reward projects that comply with their environmental management plans and environmental regulations.
4. Increase the capacity of the Directorate of Environmental Management of the GNPD and the Environmental Quality Technical Units of Isabela and San Cristóbal to conduct all environment-related processes in a timely fashion and to track and monitor compliance with environmental permit obligations and the respective environmental management plans.



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Acknowledgements

The authors extend sincere thanks to the Environmental Quality staff of the GNPD of Isabela, San Cristóbal, and Santa Cruz, whose daily efforts make it possible to fulfill

the responsibilities delegated by the Ministry of the Environment, and thus contribute to the conservation of the unique and fragile ecosystems of our province of Galapagos.

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