

INFOWETLAND

September 2018



Editorial

In this new version of our Infowetland magazine, we are celebrating the World Wetlands Day. We will speak about the importance of these ecosystems for humans and for biodiversity. Engineer, Jacklyn Rivera Wong, tells us about the soil as a resource associated to wetlands ecosystems in Costa Rica. There are many ways of conserving a wetland, in this edition we are presenting a few. We hope that you can enjoy this didactic way of informing and illustrating about wetlands.

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February 2, World Wetlands Day

Nowadays, most of human population live in urban areas and it is estimated that this number will increase as years pass. Therefore, most of the weight against natural disasters is on urban wetlands.

Every February 2nd, we celebrate the signing of the Ramsar Convention, date in which the importance of the creation of wetlands is recognized. Party

countries compromised to create Ramsar sites or wetlands of international importance, which leads to their conservation and adequate management. This year the world wetlands day has as its motto "Wetlands for a sustainable urban future", which emphasizes the importance of urban wetlands and how they make cities more habitable.

To commemorate this important date, various activities were carried out in the region, to raise

awareness among the population about their representation and why we should take care of them.

According to the Ramsar Convention, as urbanizations grow, wetlands decrease, so for the following years an increase in population and decrease in ecosystems are expected.

For this reason, this year we have chosen to publicize: what are urban wetlands? How do they work? how do they protect the human being? And most importantly, what do they bring to the planet?



What is the role of urban wetlands?

Wetlands offer us various services and benefits, which reduce the risks of any type of disaster, especially in urban areas, where the human hand leaves an even greater footprint in these ecosystems. This is why we present 4 services and benefits that they offer us.

1.Reduction of flood risk

Wetlands absorb a large amount of water, reducing flooding in coastal areas.

2.Filtration of wastewater

In a natural way, they turn dirty waters into waters for human benefit as well as for ecosystems and biodiversity.

3. Offer a place for recreation

These ecosystems offer natural places for recreation in areas that provide beautiful landscapes and a relaxing environment.

4. Improve air quality

They improve the quality of the air, increasing the quality of the oxygen and gases mixed in it, which allows us to breathe less amount of CO₂, improving human health.



Activities in the month of wetlands



During the month of February the month of wetlands was celebrated, commemorating February 2, the world day of these ecosystems.

The activities varied between talks, to activities with people of different ages, ranging from children to older adults, to provide society with key knowledge in the conservation of these ecosystems. Likewise, the activities took place at the National and Regional Level.



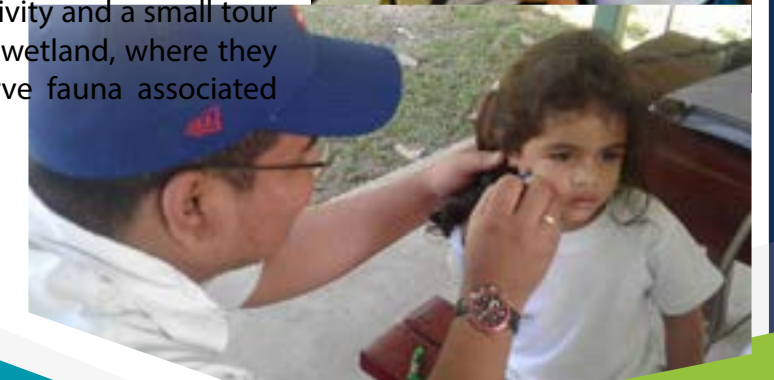
At the national level

Metropolitan park

February 2, 2018

During February 2, the Ramsar Regional Center (CREHO) carried out an activity in conjunction with the Panama Metropolitan Park summer school program. Children from 5 years

old to 11 years old participated in this activity. During the activity, an introductory talk on the knowledge of wetlands was given to children, then we proceeded to organize a dynamic with the children in which we measured their level of learning with respect to the talk. Likewise, during this activity there was a face painting activity and a small tour to a nearby wetland, where they could observe fauna associated with it.



Activities in the month of wetlands

Biomuseo

February 4, 2018

During the month of the wetlands, we developed a talk in conjunction with the Panama Biomuseum, which, every first Sunday of the month, runs free activities to audiences of all categories.

The talk was addressed to an audience of various ages, then a group dynamic was carried out to measure the level of knowledge acquired by the audience.



Activities in the month of wetlands



Informative talks

February 19 - 28, 2018

The last weeks of February were addressed to students from schools and universities that have made way for scientific research and conservation of the environment. Among them were joined: The Metropolitan School, the International Maritime University of Panama and La Florida State University. The talks were focused on students from the marine environment, from the Bachelor of Science and from ages 16 and up.



Activities in the month of wetlands

At the regional level

Cartagena celebrates the World Wetlands Day

February 3, 2018

The Cabezo Beaza lagoons were part of the great celebration entitled: "Lagoons that house valuable diversity", this event was carried out with the aim of providing knowledge of the great diversity that wetland ecosystems harbor.



The Amazon celebrates the Wetlands

February 5, 2018

During the wetland month, southern Amazonia celebrates with waste collection activities, environmental education, and seedlings planting. Activity aimed to all public, which increased the amount of provided knowledge.



Activities in the month of wetlands

Costa Rica celebrates the World Wetlands Day

March 21 and 22

The Ramsar Center participated in the forum: achievements, challenges and great allies of the Terraba Sierpe Ramsar site, under the coordination of the SINAC of Costa Rica and in the framework of the World Wetlands Day, also in the activity aimed at children from the Guarumal School, where there were talks and games for children.



The soil as a resource associated to the productive

By: Jacklyn Rivera Wong,
forestry engineer
Coordinator of the National
Wetland Program, SINAC/
MINAE

wetland ecosystems in Costa Rica

Lately, the issue of wetlands has gained strength in Costa Rica. This is due to the fact that more and more activities, uses and users are related to the ecological characteristics of these varied and vulnerable ecosystems.

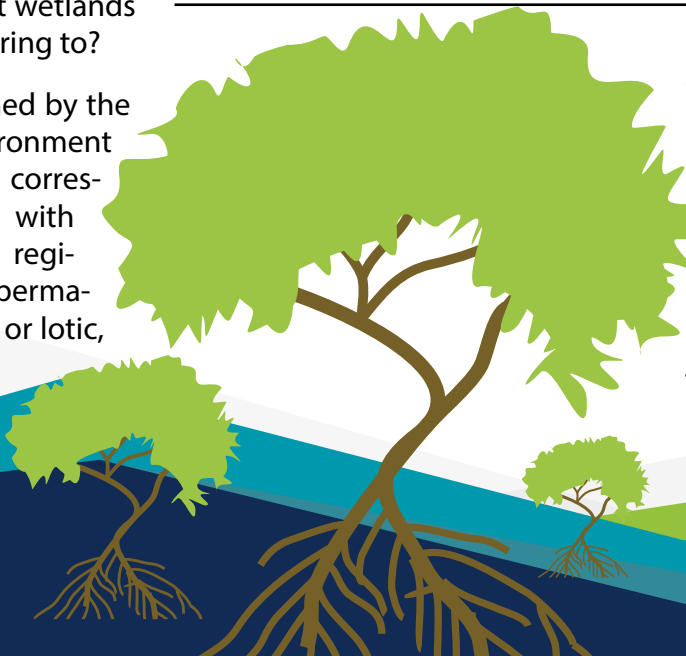
With the ratification of the Convention Relating to Wetlands of International Importance especially as waterfowl habitat (Ramsar), through Law No. 7224 of 1991, Costa Rica acquired the commitment to effectively protect wetlands, promoting their conservation, proper management and care.

But when we talk about wetlands ... what are we really referring to?

The definition established by the Organic Law of the Environment indicates that a wetland corresponds to an ecosystem with dependence on aquatic regimes, natural or artificial, permanent or temporary, lentic or lotic, sweet, brackish or salty, including mari-



Oil palm and rice crops, among others, put pressure on the Térraba Sierpe National Wetland, in Osa de Puntarenas. Pollution by agrochemicals, invasion of the protection zones of rivers and channels, and deforestation due to the advance of the agricultural frontier are the main problems generated. (Foto: Néstor Veas)



ne extensions up to the later limit of marine phanerogams or coral reefs, or in their absence, up to six meters deep at low tide. Likewise, the Executive Decree "Technical Criteria for the Identification, Classification and Conservation of Wetlands" (No. 35803-MINAE of January 7, 2010) highlights the following essential ecological characteristics: hydrophilic vege-

tation, hydric or hydromorphic soils and the hydric condition. We can find these ecosystems from the glacial lagoons in the Chirripó National Park to the coral reefs of the warm coastline in the Caribbean, as well as in the flooded forests of yolillo palm in Barra del Colorado and the flood plains distributed through the wide Canton of Sarapiquí, in addition to the marsh wetlands located

throughout the Central Pacific. Just as its definition is broad, so are the classes of wetlands in the national territory.

Competent institution

The institutional platform to conserve and ensure a rational use of wetlands corresponds to the National System of Conservation Areas (SINAC, in Spanish) of the Ministry of Environment and Energy (MINAE, in Spanish). This, in turn, responds to the Government Policy of the Republic that establishes achieving the sustainable development of all the areas identified as wetlands, both at the level of the administration and the general public.

To move towards compliance with this policy, it is necessary to have a strengthened, trained and empowered institutionality, as well as adequate inter-institutional coordination that contributes to real progress.

In the last two years, the Ministry of Agriculture and Energy MINAE, through a cooperation agreement between the National Institute of Innovation and Technology Transfer (INTA, in Spanish) and SINAC, with the support of the SINAC-PNUD-GEF Wetlands Project, a training cycle has been implemented to expand the knowled-

ge necessary to improve technical analysis of the essential characteristics of wetlands, including hydromorphic soils.

This product intends to implement a technical procedure to characterize the wetland soils in the estuarine, marine, lake and marsh systems, in addition to the description of the field work regarding the sampling methodology and the taxonomic classification criteria, the way in which it is linked to the criteria for classifying land use capacity and even recommended mapping scales according to the study area.

This institutional synergy has permeated the knowledge of more than 50 SINAC officials and aims to broaden the scope to private professionals who operate and are relevant actors in technical decision-making for the agricultural sector, which always shares natural spaces with ecosystems in question.

Use, users and best management decisions

An example of productive activity developed in wetlands is the case of rice, which went from being a crop of small producers who applied traditional techniques, to becoming an agribusiness managed by medium and large companies in a few years. 68% of rice sales in the market are managed by three large companies and 12% of the profits generated by the premiums are concentrated in a single company (<https://www.centralamericadata.com>).

Due to the growth of the agricultural frontier, some cultivated areas of rice are located in the vicinity of protected areas such as wetlands, for which the cultivation of this grain is seen as a threat by the intensive use of agrochemicals. However, rice paddies are considered, in turn, as artificial wetlands for having alternate cycles of flooding, drainage and disturbances that present a large number of prey that are affordable for waterfowl. Measurements made by McCoy in one study found losses of up to 43 grams of soil per gallon of water, which equates to a loss of 33.5 metric tons of soil for every 10 ha of creeping with 30 centimeters of water depth.

The loss of soils and nutrients also implies additional costs in cleaning drainage channels and



Pineapple plantations frequently invade the protection zones of rivers and streams, disrespecting the law and damaging the ecological integrity of these and other wetlands. (Photo: Gabriela Hernández)



Sampling of wetland soils in a rice crop by officials of SINAC / MINAE, an institution that is responsible for ensuring the conservation and rational use of wetlands in the country. (Photo: Gabriela Hernández)

changes in the invertebrate fauna of these waters that harm other higher taxonomic groups in the ecosystem.

IIICE, 2011. Production, technology and commercialization of rice in Costa Rica 1950 – 2005 Mc Coy, M. (1999). Planting rice with irrigation in a sheet of water: three years of empirical experiences in Guanacaste to avoid soil erosion and the use of herbicides. XI Agronomic Congress, 1999, conference 68.

The loss of soil and nutrients not only affects wetlands, but the productivity that this area initially has. So evaluating hydromorphic soils is one way of ensuring that the soil remains with all its ecological characteristics and, in the case of artificial wetlands with rice production, they can be increasingly productive and at the same time provide a temporary habitat for associated fauna.

Another case that is increasingly growing is the production of the pineapple monoculture. According to CANAPEP data, for 2015 there was a total production of 2,290,073.06 TON. 47%

of them came from the Huetar Norte Region, which is home to the Caño Negro and Maquenque Ramsar Sites.

Another 31% of production comes from the Huetar Atlántica Region, coinciding with the area where the Caribe Northeast and Gandoca Manzanillo Ramsar Sites are located, and the remaining 22% is produced in the Region of Brunca, where the Terraba Sierpe National Wetland Ramsar Site is located.

Costa Rica is clear about its agricultural productivity goals, as well as its environmental commitments. However, these two agendas share the same geographical areas in practice, but not the planning tables. "The practical guide for the characterization and delimitation of hydromorphic soils associated with wetland ecosystems", produced by INTA and SINAC, represents an opportunity and a tool to capture technical and legal limitations in an accurate way, and thus avoid economic losses and unnecessary administrative and criminal processes if the variable of sustainable development is considered within the flow of projects, compatible with all the agendas established by the country.

Carrying out the action plan for the conservation of coastal wetlands and shorebirds in the arid coast of South American pacific

On May 25 and 26, 2018, a workshop for the conservation of coastal wetlands and shorebirds on the arid coast of the South American Pacific is held in Valparaiso, Chile. This workshop addressed the need for the protection of the different types of wetland ecosystems, since they represent an important site for migratory birds that are in their passage through the areas.

This event had actors from Chile, Peru and Ecuador, working together with International Organizations. The Ramsar-CREHO Regional Center was one of the main actors in this conservation meeting.

Ing. Rebeca Magaña, CREHO technical officer, representing this international organization, spoke about the conservation of coastal wetlands and shorebirds within the framework of the Ramsar Convention, she explained the

principles for the conservation of coastal areas, the communication, awareness, education and participation program (CeCop), which seeks the dissemination of wetland conservation issues, among other topics of great importance.

During this workshop field trips were made with the participants, which were carried out in the island's wetland and the Mantagua wetland in Chile and had an exhibition about restoration and monitoring.



Mexico works in the project “Conservation of coastal watersheds, in the context of climate change”

The Mexican fund for the conservation of nature, in conjunction with four commissions of the Secretary of the Environment and Natural Resources of Mexico: the National Commission for Protected Areas, the National Forest Commission and the National Institute of Ecology and Climate Change, implement actions with the community to help strengthen the conservation of the coastal economic resource.

This project broadly strengthens the locality and governments, to implement correct conservation actions, an



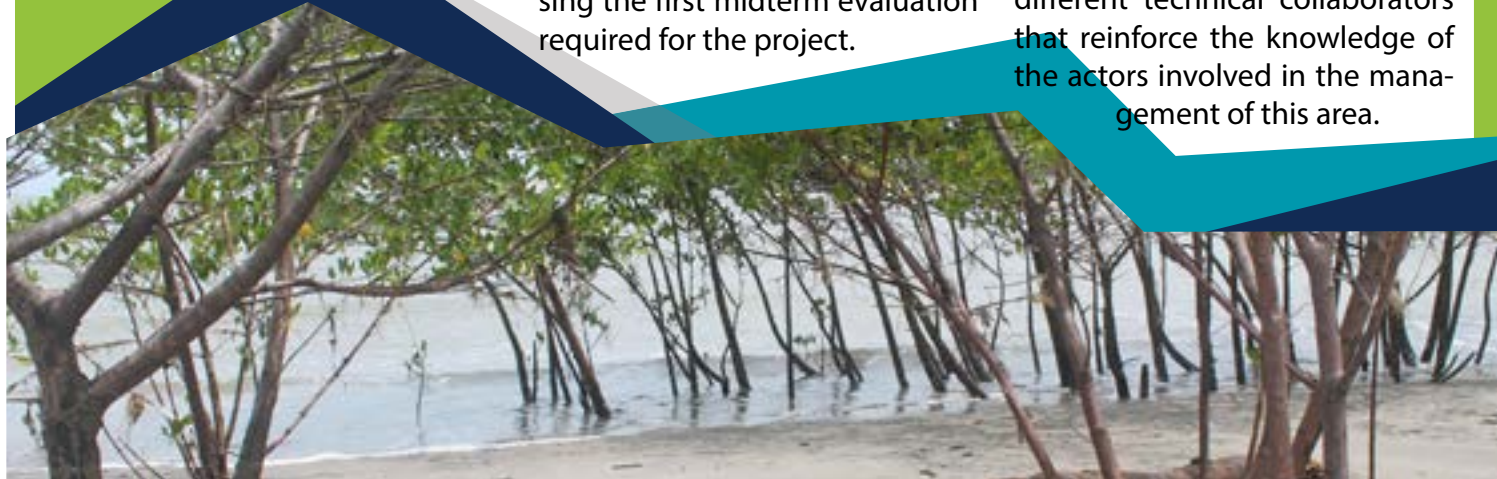
example is the increase in park rangers.

The project focuses on the federal, state and local levels, passing the first midterm evaluation required for the project.

Its completion is in 2019, so they obtain as an objective around this time, the proper implementation of the marsh decree, the realization of a basin management action plan, among other specific actions for the proper strengthening of management of deteriorating wetlands in Oaxaca, Mexico.

“The novelty of the instrument is that it is based on a comprehensive analysis of hydrological environmental services,” says Joanna Acosta Velásquez, who manages the basins of the Northwest Fund.

This initiative has been in the works for three years and has different technical collaborators that reinforce the knowledge of the actors involved in the management of this area.



Costa Rica celebrates the compliance with the Ramsar convention

The National System of Conservation Areas, with the support of the United Nations Development Program (UNDP) and the Global Environment Facility (GEF), present the national inventory of wetlands in Costa Rica.

In an activity held at the Radisson hotel in Costa Rica, SINAC presented specific products for compliance with the Ramsar convention, for the management of wetlands.



Some of these products are: Wetland Inventory, National Wetland Policy, Proposal for the declaration of Ostional as a Ramsar site, among others.

“These products are mainly aimed at public institutions and then at the private sector that focus on sustainable development,” says Jacklyn Wong from SINAC.

As part of the development of these useful tools for the management of these ecosystems, 500 people throughout the country were trained, especially SINAC officials.





Text on the book cover, partially obscured.



Presentation of the book "Pantanos de Villa" in the book fair of Peru

sed, the relationship of the Villa swamps with the city of Lima and its history, three chapters dedicated exclusively to the vegetation, birds and fauna in general of this ecosystem, closing with two chapters dedicated to important aspects to improve conservation and the role of the Universidad Científica del Sur in the conservation of this coastal wetland.

"The book is addressed to the general public and to all those who want to know a little more about the diversity of the coastal wetlands of Peru; particularly from Pantanos de Villa, a Ramsar site of vital importance in the city of Lima," says Héctor Aponte, one of the authors.

This book is focused on transmitting the importance of these spaces in the city. Pantanos de Villa is a Ramsar site located in the city of Lima, a capital city, which, due to its scenic beauty, its diversity and the large number of benefits we obtain, is an ecosystem that deserves to be protected and preserved.



Researchers and professors from the Scientific University of the South present a book about the Pantanos de Villa "Villa Swamps".

Héctor Aponte, research coordinator of the Marine Biology degree and associate researcher, Dámaso Ramírez, coordinator of the Basic Courses area and Gus-

tavo Lértora, professor of ecology, basic courses, all three from the Universidad Científica del Sur, presented at the book fair of Peru, the book titled "Los Pantanos de Villa, un Oasis de Vida en Lima Metropolitana" (The Village Swamps, an oasis of life in Metropolitan Lima), which is divided into 7 chapters and an introductory chapter, where general aspects of wetlands are address-

Cuba celebrates the international day for the defense of the mangrove



En Cuba se celebra el día internacional por la defensa del ecosistema de manglar. Desde hace varios años, en Cuba se realizan actividades para conmemorar esta fecha tan importante. El principal público objetivo son las comunidades costeras, ya que dependen directamente de los recursos que estos ecosistemas brindan.

Este año se realizaron actividades con artistas y el día 28 de Julio, la esencia fue directamente a la comunidad infantil. La misma contó con obras de teatro, entre otras labores en conjunto con los pequeños.

Integrantes del proyecto Manglar Vivo, busca reforzar la enseñanza de la importancia de los manglares en las zonas costeras, tanto para prevención de riesgos de desastres, como para proveer recursos económicos a las zonas.

Luis David Almeida, José Manuel Guzmán y Lázaro Rodríguez, parte del equipo de Manglar Vivo, nos comen-



tan que es importante sensibilizar a las poblaciones acerca de los temas de conservación.

"Es importante utilizar las herramientas que se brindan para la conservación, y se a de marketing o de campañas para sensibilizar" comenta Luis Almeida, quien es coordinador del programa.

La historia del proyecto, ha crecido y tiende a diferenciarse de otros proyectos en Latinoamérica, por la forma de ejecución.

Las distintas actividades y conocimiento acerca del equipo de Manglar Vivo, se ha logrado por el trabajo

arduo de años. Las comunidades se han ido uniendo a las mismas, cada vez más.

"Todos los sectores deben estar preparados para trabajar en conjunto para la conservación de los manglares" menciona José Manuel Guzmán, miembro del equipo. Se ha captado la necesidad de cada sector y por esto se busca hacer de las actividades una tradición anual, de manera que se llegue a más público.

"Este proyecto ha logrado convertir el pensamiento de producción, a un pensamiento más de conservación" recalca Lázaro Rodríguez, que es uno de los logros alcanzados y toma en cuenta que "Se ha llegado a trabajar con los niños que son el público meta". Este proyecto se desarrolla con fondos de adaptación al cambio climático del PNUD y culmina en el 2019.

Panama celebrates the international day for the defense of the mangrove ecosystem



The Ramsar Regional Center for Training and Research on Wetlands in the Western Hemisphere (CREHO), in conjunction with the National Secretariat for Science, Technology and Innovation (SENACYT), the Smithsonian Institute for Tropical Research, the City of Knowledge Foundation, the Patronato de Panamá Viejo, the Audubon Society of Panama and the Environmental Advocacy Center (CIAM, in Spanish) join forces to celebrate the International Day for the Conservation of the Mangrove Ecosystem on July 26, 2018, inviting everyone to be part of a month in recognition of the contributions of the mangroves to the economy and the protection of cities.

As part of the commemoration of the international day for the



defense of the mangrove ecosystem, various activities were held that began with scientific and community exhibitions, photographic exhibitions, and even exhibitions at the Biomuseo of Panama. We have scientific exhibitors such as: Dr Arturo Domínguez, Dr. Steven Paton, Dr. Greg Gilbert, Mgtr. Diana Laguna, Mgtr. José Berdiales, Mgtr. Yehudi Rodríguez, Dr. Daniel Suman and Lic. Anibal Castillo, during the day of scientific exhibitions. The book "Un futuro sostenible para



los humedales de Bahía de Panamá" (A sustainable future for the wetlands of the Bay of Panama) was presented by the Audubon Society of Panama.

Likewise, during the day of community exhibitions, we have the exhibitions of: Dr. Manuel Mejía, the Ebenezer group from Chame, Panamá Oeste and Mgtr. Jennifer Díaz. On this activity, the book "Socio-environmental environment and water quality of the Panama Bay Wetland" was presented by the Center for Environmental Advocacy (CIAM).

As part of the activities, we had a debate by environmental lawyers, who presented the legal issue of the mangrove situation.



Biological-fisheries characterization of shark fishing in the nursery area of the Bay of Chame: locations in the sustainable management of populations

This project is directed by Mgtr. Yehudi Rodríguez, expert in shark and ray fisheries. It is funded by SENACYT and supported by the Ramsar Regional Center.


She began in mid-2017 and already presents some advances in its first stage on the dynamics of sharks in the site. Female hammerhead sharks *Sphyrna lewini* (CITES Appendix II) begin to enter the month of February and the number of females begins to intensify until May when they already leave the site. During this time, it was possible to determine some of the sites where the females enter to give birth.

Even though Bahía de Chame is a site where mangrove ecosystems predominate, the females preferred those areas where mangroves are not abundant, approaching the coast looking for shallow sites and where the water conditions are turbid and





with muddy substrate. Unfortunately, these breeding areas coincide with the places where the fishermen carry out their activity and whose resources are of great commercial interest. Information on physical-chemical parameters were also recorded during the study to determine the presence of sharks and their relationship with variables such as dissolved oxygen, pH, temperature, conductivity, among others. And these were the results presented at the Annual Meeting of the Ecological Society of America 2018 in New Orleans, Louisiana by the students of the Metropolitan School (MET) Mark Norman, Valeria Alvarez and Femke van 't Hoff under the coor-


dination of Professor Ph. Jenny Noble, who in addition to participating in many of the tours of the project, also performed data analysis. They competed to be selected in such a prestigious event, which is attended by more than 2,000 people. For the students, it represents the opportunity to present a project of great interest that involves sharks, a resource that in Panama is overexploited (due to the great decrease observed in all landings), but that has not been given due interest, because although campaigns have been carried out focused on their protection, not enough financial resources are allocated to collect scientific information.




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