



# EcoIngemar

## Grupo Ingemar

Consultores Socio-Ambientales

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### CORPORATE CURRICULUM



Company registered in the Republic of Panama

Corporate Records:

**Environmental Consultant:**

DEIA-IRC-16-2021

**Environmental Auditor:**

DIVEDA-EAA-04-2021



Mobile +507 64504616

Office +507 398-3776

Office +507 236-8117



Support clients in planning, designing, building, and operating projects in general, maintaining high standards of environmental quality and complying always with current national and international environmental regulations.



Lead the field of environmental consulting and auditing, maintaining high moral and ethical values; and becoming a strategic partner of our clients.

[ingemarmd@gmail.com](mailto:ingemarmd@gmail.com)

[fundacionislaiguana@gmail.com](mailto:fundacionislaiguana@gmail.com)



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Vista Park Building, Ground Floor, Angel Rubio Street, El Carmen, Panama City



Marco L. Diaz V.  
Marine Biologist and Oceanographer with 34 years of experience



Donor of the Isla Iguana Foundation



#### MORE THAN 27 YEARS OF EXPERIENCE

We have successfully managed 11 EIS Category 3; 28 EIS Category 2; more than 200 EIS Category 1; 8 Environmental Audits and PAMA; and 10 Environmental Studies with International Banking standards, including institutional strengthening projects for environmental and social units.

Most of our clients stay with us as their Environmental Auditor for follow-up during the construction and operation of their projects; Therefore, our experience covers the entire environmental management process. None of our EIS have been rejected.



**Values**



#### EXPERIENCE IN CLIMATE CHANGE AND "GREEN" PRODUCTS

We analyze the impacts of climate change on projects and vice versa. In addition, we created environmental and social management plans for projects that apply for "Green" licenses.



#### VAST EXPERIENCE IN PUBLIC CONSULTATION

We have successfully completed public consultation processes while developing EIS and 12 public forums.

We have submitted comments and proposals for changes to all processes to modernize the standard governing EIS in Panama.

### WHY YOUR BEST OPTION?



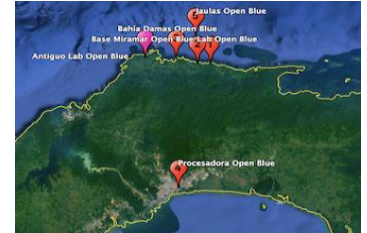
AQUACULTURE



May 2011 to date

**PRODUCTION OF COBIA (RACHYCENTRON CANADUM) IN CAGES IN THE OPEN SEA AND LABORATORY ON LAND**

Open Sea, Miramar, Viento Frio and Damas Bay on the Costa Arriba de Colon; Llano Bonito in Panama City and Port of Vacamonte



⇒ Inspections and quarterly and semi-annual reports are prepared to quantify compliance with the execution of mitigation procedures. Permits were processed.



⇒ Monitoring of:



**EXPANSION OF THE MIRAMAR PORT**

Nov 2019 – Aug 2020

**MARINE FISH CAGES IN DAMAS BAY**

Jul 2013 - Jun 2014

**MARINE FISH CULTURE LABORATORY**

Apr 2013 – Jan 2014

**PLANT TO PRODUCE FISH OIL & FLOUR WITH ORGANIC WASTES OF ALL FACILITIES**

May – Oct 2021

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Risk assessment for:



⇒ Social Base Line and Public Consultancy:



⇒ In Miramar three EI, Category I were unified and modifications and improvements to the facilities were proposed.



AQUACULTURE



**CLOSURE PLAN OF THE COBIA LARVAE  
LABORATORY IN PUERTO LINDO**

Jan 2014

⇒ Inspections and documents reviewed to prepare the *Audit Plan*, the *Voluntary Environmental Audit*. Once findings were identified, the *Environmental Adequation and Management Plan* (EAMP; PAMA in Spanish) was prepared to adequate closing actions to comply with current environmental and social standards.





AQUACULTURE



PRODUCTION OF BOJALÁ (*SERIOLA RIVOLIANA*)  
 IN CAGES IN THE OPEN SEA AND LABORATORY  
 ON LAND



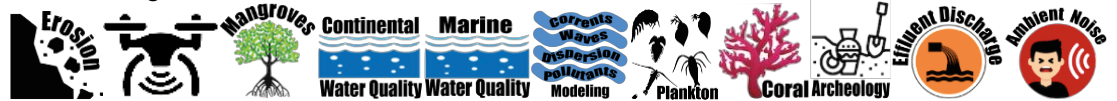
Puerto Armuelles, province of Chiriquí.

Oct 2019 – May 2020

⇒ Inspections and semi-annual reports were prepared to quantify compliance with the execution of mitigation procedures. Permits were processed.



⇒ Monitoring of:



Nov 2018 - Oct 2019

OPEN SEA CAGES AND MARINE FISH LABORATORY



⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Risks' assessment for:



⇒ Social Base Line & Public Consultancy:





ENERGY



**RÍO ALEJANDRO ENERGY PARK (PERA)  
 DREDGING OF THE NAVIGATION CHANNEL  
 AND THE TURN BASIN OF BAHÍA LAS  
 MINAS**



Alejandro River, Puerto Pilon, district, and province of Colón.



Jun 2016 to date

⇒ Inspections and quarterly reports are carried out to quantify compliance with the implementation of mitigation procedures. Permits were processed.



⇒ Monitoring:



**GAS TO POWER PANAMA**

Feb – Dec 2017

**RÍO ALEJANDRO ENERGY PARK**

Aug 2015 – Sep 2016

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ **Climate Change:** Sea level rise was estimated. Reduction of greenhouse gas emissions in the energy matrix of Panama was estimated.



⇒ Risks' assessment for:



⇒ Social Base Line & Public Consultancy:







ENERGY



ISOLATED GENERATION SYSTEMS



Darién Province: Boca de Cupe, Garachiné, Jacque, La Palma, Otoque, Santa Fe, Tortí, Tucutí and Yaviza.  
 Region of Guna Yala: Narganá, Río Azúcar. Islands of the Gulf of Panama: Chepillo, Saboga, San Miguel, Taboga.  
 Bocas del Toro: Colon Island



**VOLUNTARY ENVIRONMENTAL AUDITS AND PAMA TO THE THERMOELECTRIC PLANTS OF YAVIZA, TABOGA AND SABOGA**

Dec 2022 to date

⇒ Inspections and documents reviewed to prepare the Audit Plan, the *Voluntary Environmental Audit*. Once findings were identified, the *Environmental Adequation and Management Plan* (EAMP; PAMA in Spanish) was prepared to adequate the operations to comply with current environmental standards.



**COMPLIANCE AND MONITORING OF THE SANTA FE, TORTÍ (DARIÉN) AND ISLA COLÓN (BOCAS DEL TORO) THERMOELECTRIC PLANT**

Jul 2020 to date

⇒ Inspections and semi-annual reports are prepared to quantify compliance with the execution of operation activities and improvements, for which they have PAMA. Permits were processed.



⇒ Monitoring:



**15 THERMOELECTRIC PLANTS**

May – Jun 2020

- ⇒ Environmental Audit inspections to facilities that operated for many years.
- ⇒ Review of environmental documentation provided by the former owner, including Environmental Audit Reports, EIS, PAMAs, Compliance Reports.
- ⇒ Review of the files in the regional offices and DIVEDA of the Ministry of Environment.
- ⇒ Identification of environmental, social, and bad practices that required mitigation and/or adaptation actions.
- ⇒ Neighboring residents and neighbors were interviewed. Recommendations were issued and short-term (immediate), medium-term (next 3 months) and long-term (1 year) actions were identified to comply with environmental standards.



ENERGY



EIS CATEGORY II, SANTA FE NLG POWER

Dec 2018 – Sep 2019

TORTÍ NLG POWER PLANT

Mar - Jun 2019

PROGRESO'S THERMOELECTRIC PLANT

Aug – Nov 2021

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ **Climate Change:** The effect of the reduction of greenhouse gas emissions in the energy matrix of Panama due to the change of fuel to Liquefied Natural Gas was evaluated.



⇒ Risks' assessment for:



⇒ Social Base Line & Public Consultancy:



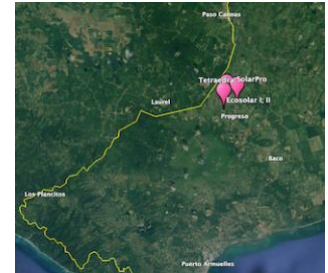


ENERGY

PHOTOVOLTAICS INVESTMENTS CORP.  
 TETRAEDRA HOLDING INC.  
 PHOTOVOLTAICS DEVELOPMENTS INC.  
 TETRAEDRA INVESTMENT INC.  
 AGUAFUERTE, S.A.  
 AQUAVOLTAIC, S.A.  
 PHOTOVOLTAIC CORPORATE CORP.  
 PHOTOVOLTAIC OPERATIONS CORP.  
 PHOTOVOLTAIC VENTURE CORP.

SOLAR FIELDS

Progreso, province of Chiriquí



⇒ Inspections and quarterly reports to quantify compliance with the implementation of mitigation procedures. Permits were processed.



Ecosolar I

Feb. 2019-Mar. 2021

Ecosolar II

Aug. 2019-May. 2021

Tetraedra

May. 2022 to date

Solar Pro

Jul. 2022 to Date

⇒ Monitoring:



⇒ Social: work offered to neighbors during construction.



ECOSOLAR I

Jul-Aug 2019

ECOSOLAR II

Nov 2018-Feb 2019

TETRAEDRA

Jan-Aug 2020

SOLAR PRO

Mar-Jul 2022

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Risk assessment for:



⇒ Social and public consultancy:







ENERGY



CAFÉ DE ELETA, S.A.

Piedra Candela, Chiriquí province



CANDELA HYDROELECTRIC PROJECT

Mar 2004



- ⇒ Eleta Coffee built a mini-hydroelectric plant to generate electricity for their facilities to process coffee and sell the extra energy to the National Integrated System.
- ⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Risks' assessment for:



⇒ Social Base Line & Public Consultancy:



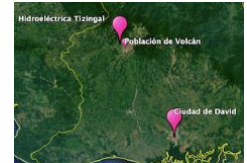


ENERGY



ELETA GROUP

Chiriquí Viejo River, Chiriquí Province



TIZINGAL HYDROELECTRIC PLANT

Sep 2014



- ⇒ Review of environmental documentation provided by the former owner, including EIS and its extensions.
- ⇒ Review of files in the regional office & national direction of the Panamanian Environmental Authority.
- ⇒ Identification of environmental, social, and bad practices that required mitigation and/or adaptation actions.
- ⇒ It was recommended NOT to buy the project.



ENERGY



**PANDO AND MONTE LIRIO  
 HYDROELECTRIC POWER PLANTS**

Middle Basin of the Chiriquí Viejo River, Chiriquí Province  
 With standards for the IDB and the World Bank (IFC)



⇒ Inspections and quarterly reports are prepared to quantify compliance with the implementation of mitigation procedures.



Sep 2009 – Feb 2010

⇒ Quarterly aquatic biota samplings, which are provided in separate reports, include fish, electric rod (Electro Fisher), periphyton, insects and aquatic invertebrates. Water quality is measured with multiparameter, and some parameters are quantified in an accredited laboratory. The flow rates were supplied by the Customer. Sep 2009-Feb 2010 and Aug 2016-Dec 2022.

Aug 2016 to date



**ENVIRONMENTAL MANAGEMENT AND ACTION PLAN**

Aug 2009 – Feb 2010

⇒ The EIS Category 3 was updated to a Social & Environmental Management Plan according to World Bank and the Inter-American Development Bank Standards.  
 ⇒ The baseline was validated by monthly sampling for one year of:



⇒ Detailed procedures were generated to mitigate, compensate, and monitor the identified environmental impacts; and prevent and contain identified environmental risks.  
 ⇒ The Management Plan also identified the actors who would execute the plan, training of client's personnel and contractors; and detailed the content of the compliance reports to be delivered to ANAM and banks.  
 ⇒ Another product included an Environmental Action Plan which detailed Client's responsibilities for each action embodied in the procedures, its Environmental Unit, its contractors, and the External Environmental Auditor.  
 ⇒ Participated in public consultation workshops, in support of the social component; and in teleconferences to support the results before bank evaluators.





ENERGY



THERMO-BARGE TO BUNKER AND SITE SELECTION FOR NLG

Las Minas Bay and Telfer, Colón province



2014 – 2015

⇒ Inspections and quarterly reports were conducted to quantify compliance with the implementation of mitigation procedures. Permits were processed.



⇒ Monitoring:



EIS Manager

INSTALLATION OF BARGE GENERATOR ESTRELLA DEL MAR I AND ADAPTATION OF REQUIRED AREAS

Apr – Sep 2014

⇒ Base Line, impacts assessment and mitigation procedures for:



⇒ **Climate Change:** The rise in sea level in coastal structures and the effect of emissions on the local climate were evaluated, considering cumulative impacts with other surrounding thermoelectric plants.



⇒ Risk assessment for:



⇒ Population and public consultancy:





ENERGY



TWO SITES TO LOCATE A GAS THERMOELECTRIC PLANT

Apr 2015

⇒ Two sites provided by Client were evaluated to build and operate a thermoelectric plant. Several variables were evaluated comparing results and scored according to an Environmental Sensitivity Index (ESI). The variables studied were:



⇒ **Climate Change:** The impacts of rise in sea level on coastal structures and the effect of emissions on the local climate were evaluated, considering cumulative impacts with other surrounding thermoelectric plants.







ENERGY



CELSIA

BLM: Cativá, province of Colón.  
Dos Mares: Chiriquí River, Chiriquí Province



ENVIRONMENTAL AND SOCIAL DUE DILIGENCE OF THE BAHÍA LAS MINAS THERMOELECTRIC PLANT (BLM); AND THE DOS MARES HYDROELECTRIC COMPLEX

Jul 2014

- ⇒ Environmental Audit Inspection of facilities that operated for many years.
- ⇒ Review of environmental documentation provided by the former owner, including Environmental Audit Reports, EIS, PAMAs, Compliance Reports.
- ⇒ Review of files in the regional office and DIPROCA of ANAM.
- ⇒ Identification of environmental, social, and bad practices that required mitigation and/or adaptation actions.
- ⇒ Recommendations were issued and short-term (immediate), medium-term (next 3 months) and long-term (1 year) actions were identified to comply with national environmental standards.



AGUA Y ENERGÍA, S.A.

Chiriquí Province

GUALAQUITA, CHORCHA AND SAN ANDRÉS HYDROELECTRIC PROJECTS



⇒ Inspections and semi-annual reports were prepared to quantify compliance with the execution of mitigation procedures. Permits were processed.





ENERGY

Atlantic Generator

ATLANTIC GENERATOR

Cativá, Colón Province



Mar - Jun 2007

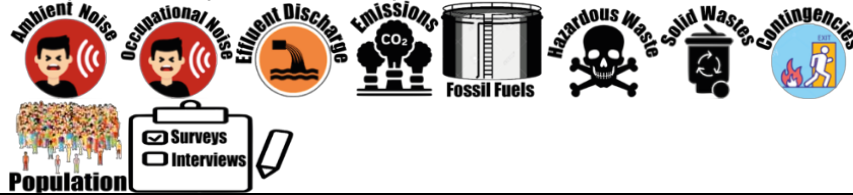


ATLANTIC THERMOELECTRIC GENERATOR

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Population and public consultancy:





PORTS AND PANAMA CANAL



Panama Ports Company

PANAMA PORTS COMPANY:  
 PORTS OF BALBOA (PACIFIC OCEAN)  
 AND CRISTOBAL (CARIBBEAN SEA)



Port of Cristóbal, in the city of Colón; and Port of Balboa, in Panama City.



**Cristobal:**  
 Sep 2005 – Dec 2016

**Balboa:**  
 ABR 2003 – Dec 2014

⇒ Inspections and quarterly and semi-annual reports were prepared to quantify compliance with the execution of mitigation procedures. Permits were processed.



⇒ Monitoring:



DREDGING MONITORING  
 AND DISPOSAL IN THE  
 OPEN SEA

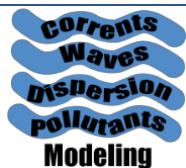
**Cristobal:**  
 Apr 2010 – May 2014

**Balboa:**  
 May 2000 – Apr 2008 (various campaigns)  
 Phases I - 4

⇒ Fieldwork was carried out one day per week and weekly reports were prepared to quantify compliance with the execution of environmental dredging and disposal procedures.  
 ⇒ Environmental Monitoring Work Plans were generated to assist contractors in processing the Dredging Permit before the AMP.



⇒ The amount of material dredged and deposited in the open sea was quantified.  
 ⇒ It was verified that it was available only in the assigned area following the protocol by quadrants.  
 ⇒ Reports of damage to the environment from oil spills.



STUDY OF SEDIMENT MOVEMENT AND  
 ANCHORING OF THE PORT OF BALBOA

Nov 2001- Apr 2002

⇒ Measurement of currents using Lagrange Drifting Devices. Mathematical model of currents. Sampling and granulometric analysis of sediments. Preparation of a report with the results obtained and sediment flow at the bottom around the port.





PORTS AND PANAMA CANAL



<b>DEEPENING AND MAINTENANCE OF THE PORT OF BALBOA</b>	2012
<b>PORT OF BALBOA EXPANSION, PHASE 4</b>	Oct 2005–Aug 2006
<b>EXPANSION OF THE CRISTOBAL CONTAINER PORT</b>	2005
<b>MAINTENANCE DREDGING OF THE PORT OF BALBOA</b>	2005
<b>BALBOA CONTAINER PORT LANDFILL, PHASE 3</b>	Dec 2000–Apr 2001
<b>DREDGING AND DISPOSAL OF DREDGED MATERIAL FROM THE BALBOA CONTAINER PORT, PHASE 3</b>	Dec 2000–Mar 2001

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ Risk assessment:



⇒ Social baseline and public consultancy:





PORTS AND PANAMA CANAL



**WIDENING AND DEEPENING OF THE PACIFIC ENTRANCE AND THE SOUTH CANAL APPROACH TO THE PANAMA CANAL**

Pacific Entrance of the Panama Canal

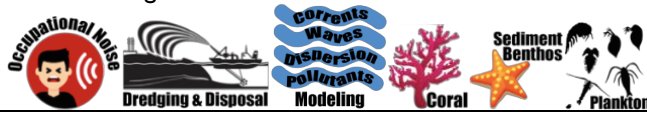


May 2008

⇒ Inspections were carried out and the baseline report was prepared to quantify compliance with the implementation of mitigation procedures. Permits were processed, and monitoring was carried out.



⇒ Monitoring:







REAL ESTATE DEVELOPMENTS

Tel & Net Activities, Inc.

SANTA MARIA GOLF & COUNTRY CLUB

Panama City



SANTA MARIA GOLF & COUNTRY CLUB

Jul 2006 – Mar 2007

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ **Climate Change:** The impact of the project on climate change was evaluated due to the affectation of wetlands and mangroves, in a site with frequent flooding in project area and adjacent zones upstream.



⇒ Risk assessment:



⇒ Social Base Line and public consultancy.





REAL ESTATE DEVELOPMENTS



UNITED NATIONS REGIONAL CENTRE

Clayton, Panama City



VIABILITY ANALYSIS OF PROJECT SITE

Jan – Feb 2010

UNITED NATIONS REGIONAL CENTER

Dec 2011- Aug 2012



⇒ A preliminary EIS was first developed.

⇒ Base Line, impacts assessment and mitigation procedures:



⇒ The Management Plan considered LEED standards to reduce energy and water consumption, emissions, and implement recycling programs for solid waste and greywater.

⇒ Risk Assessment:



Social Base Line and public consultancy:





REAL ESTATE DEVELOPMENTS



SANTA MÓNICA  
 COCLÉ, PANAMÁ

SANTA MONICA CITY BASIC  
 INFRASTRUCTURE DEVELOPMENT,  
 PHASE I

Santa Monica, Anton, province of Coclé



⇒ Impacts were assessed and mitigation procedures were created to:



Categoría 2  
 Nov 2017 - Jun 2018





REAL ESTATE DEVELOPMENTS

HYLAND COMMERCIAL CORP.

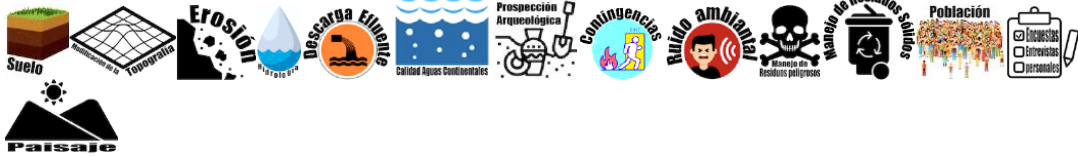
PLAZA NUEVO TOCUMEN

December 24, Panama City

⇒ Impacts were assessed and mitigation procedures were created to:



Tue - Aug 2015





REAL ESTATE DEVELOPMENTS

SUMMIT HILL RESORT, INC.

AVALON RESORT

Las Cumbres, Panama City

⇒ Impacts were assessed and mitigation procedures were created to:







REAL ESTATE DEVELOPMENTS



PUNTA PACIFICA PROJECT  
INFRASTRUCTURE DESIGN

Old Paitilla Airport, Panama City

⇒ Impacts were assessed and mitigation procedures were created to:



June 1998 – January 1999



REAL ESTATE DEVELOPMENTS



FARM DUE DILIGENCE REPORT 4616

Las Minas Bay, Colon

⇒ The EIS, its extensions, its approving resolution, the monitoring reports, the files in the ANAM (national and regional) were evaluated to evaluate its environmental management and identify environmental and social liabilities.



September 2014





REAL ESTATE DEVELOPMENTS



STUDIES, DESIGNS, PLANS AND SPECIFICATIONS FOR THE TOURISM DEVELOPMENT OF FUERTE AMADOR

Fort Amador, Panama City



⇒ Impacts were assessed and mitigation procedures were created to:



May - December 1997





REAL ESTATE DEVELOPMENTS

KIMBERLY HALL

VIABILITY AND ENVIRONMENTAL ZONING OF TRES BRAZOS IN PACORA

Upper Pacora River Basin

⇒ Analysis of environmentally permitted land uses, based on existing natural resources in the project area and existing legislation on such resources, evaluating the possibilities of development, by type of vegetation and current land use, from the perspective of current environmental legislation.





REAL ESTATE DEVELOPMENTS

Consortium Eng. F.G. Guardia and Assoc. & Clement & Medina Architects, for the Ministry of Housing

**ENVIRONMENTAL MANAGEMENT PLAN FOR  
 GOVERNMENT CITY CONCEPTUAL DESIGNS: HOWARD  
 V. ALBROOK AIRPORT**

Comparison between Howard and Albrook Airport

⇒ Comparison of two alternatives: a polygon in the northern section of Howard and Albrook Airport. The baseline generated scores that were inserted into a site selection table with other components, selecting Albrook's alternative. Surveys were conducted with NGOs. An EIA, Category I was prepared for the conceptual design phase of the project and the possible environmental zoning of the area selected for infrastructure development was analyzed.



Viabilidad Ambiental

June – December  
 2001





REAL ESTATE DEVELOPMENTS



ENVIRONMENTAL ANALYSIS OF THE COAST  
AND SUBLITTORAL OF THE BAY OF PANAMA  
FOR THE EIS OF THE SOUTHERN CORRIDOR



Panama Bay, Panama City

⇒ Impacts were assessed and mitigation procedures were created to:



Dec 1996 – Jan 1997





REAL ESTATE DEVELOPMENTS

GREENWOOD DEVELOPMENT  
GROUP, S.A.

GREENWOOD DEVELOPMENT

Ave Ricardo J Alfaro, Panama City

⇒ Inspections and quarterly reports were conducted to quantify compliance with the implementation of mitigation procedures; Permits were processed, and monitoring was carried out.



Jun 2016 – Dec  
2021





MINING

**MEXICAN AND GERMAN MINING INDUSTRY, CORDERO GALINDO, AND LEE**

**ENVIRONMENTAL AND SOCIAL DUE DILIGENCE OF THE SANTA ROSA MINE**

Cañazas, Veraguas



⇒ The EIS, its extensions, its approving resolution, the monitoring reports, the files in the ANAM (national and regional) were evaluated to evaluate its environmental management and identify environmental and social liabilities. It was concluded that if they could buy the assets of the mine.





MINING

LATINOAMERICANA DE BIENES  
 Y RAÍCES, S.A.

GONZALILLO QUARRY

Gonzalillo, North Panama

⇒ Semi-annual inspections and reports were conducted to quantify compliance with the implementation of mitigation procedures; Permits were processed, and monitoring was carried out.



2016 to 2017





MINING



**RAPID ECOLOGICAL ASSESSMENT  
 FOR UNDERWATER SAND  
 EXTRACTION OFF CHEPILLO ISLAND**

Chepillo Island, Chepo, Panama

⇒ Ecological evaluation of the coastal marine ecosystem of the area surrounding Chepillo Island, to develop action plans for the extraction of non-metallic material (underwater sand).



Viabilidad Ambiental

Nov 2007 - May 2008





MINING



Koninklijke  
 Boskalis Westminster nv

SEA SAND EXTRACTION

María Chiquita, Province of Colón

⇒ Impacts were assessed and mitigation procedures were created to:



Koninklijke  
 Boskalis Westminster nv

SEABED CONCESSION FOR SAND EXTRACTION

María Chiquita, Province of Colón

⇒ Impacts were assessed and mitigation procedures were created to:



Aug 2005 - Jan 2006





SANITATION



ENVIRONMENTAL  
ADAPTATION AND  
MANAGEMENT PROGRAM

Buena Vista, province of Colón



TREATMENT PLANT FOR OILY WASTE AND OTHER CHEMICALS

⇒ Semi-annual reports are prepared that verify compliance with the execution of operating activities, through field inspections and analysis of the results of monitoring effluent, noise, lighting, and emissions.



Oct 2020 to date







SANITATION

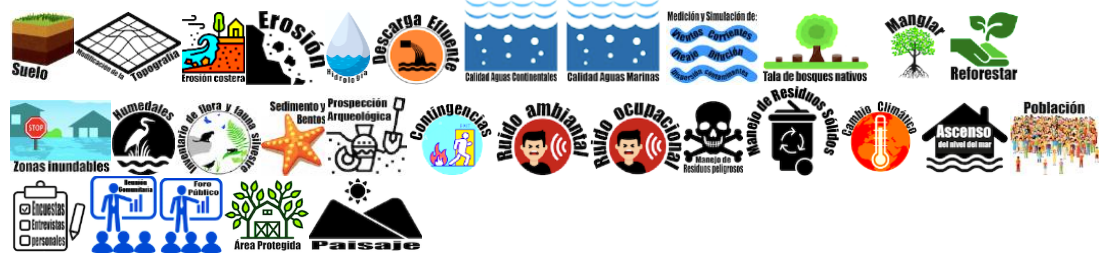


SANITATION OF PANAMA CITY AND BAY

Panama City and Bay

PANAMA CITY AND BAY WASTEWATER TREATMENT PLANT FOR SANITATION

⇒ Impacts were assessed and mitigation procedures were created to:



⇒ **Climate Change:** Sea level rise in coastal structures was assessed.

SANITATION OF PANAMA CITY AND BAY

⇒ Impacts were assessed and mitigation procedures were created to:





SANITATION



CANCER INSTITUTE

Clayton's Old Antenna Field,  
 Panama City

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN OF THE NEW HEADQUARTERS OF THE NATIONAL CANCER INSTITUTE



March – June 2012

⇒ Impacts were assessed and mitigation procedures were created to:



Studio Manager



Viabilidad Ambiental  
 December 2011

ENVIRONMENTAL VIABILITY, OF THE NEW HEADQUARTERS OF THE NATIONAL ONCOLOGY INSTITUTE

⇒ Impacts were assessed and mitigation procedures were created to:





SANITATION



HOSPITAL DE AGUADULCE

Aguadulce, Coclé Province

ENVIRONMENTAL MANAGEMENT PLAN OF THE AGUADULCE HOSPITAL



August 2001

⇒ Impacts were assessed and mitigation procedures were created to:





ISLAND AND COASTAL DEVELOPMENTS



Pedro González Island, Las Perlas  
 Archipelago, Gulf of Panama

PEARL ISLAND

PANAMA

PEARL ISLAND TRACKING AND MONITORING



Sep 2009 to date

⇒ Inspections and semi-annual reports are carried out to quantify compliance with the implementation of mitigation procedures; Permits were processed, and monitoring was carried out.



PEARL ISLAND



Categoría 3

Jun 2008 – Sep 2009

⇒ Impacts were assessed and mitigation procedures were created to:



⇒ **Climate Change:** Sea level rise in coastal structures was assessed.

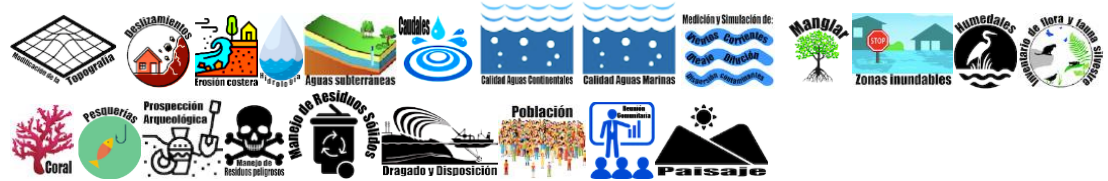


ISLAND AND COASTAL DEVELOPMENTS

ZONING AND ENVIRONMENTAL COMPONENT OF THE PEDRO GONZÁLEZ ISLAND MASTER PLAN



⇒ Analysis of environmentally permitted land uses, based on existing natural resources in the project area and existing legislation on such resources, evaluating the possibilities of development, by type of vegetation and current land use, from the perspective of current environmental legislation. In addition, we participated in the Charrette, interacting with the design team for the generation of the Master Plan, providing maps of vegetation, sensitive areas, nesting sites of turtles, birds, coral reefs, and natural resources.



ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS) OF THE RITZ CARLTON RESERVE - PEARL ISLAND



⇒ Environmental policies were developed.  
 ⇒ Impacts were identified and evaluated and programs, action plans and procedures were created to avoid, minimize, and compensate impacts associated with:



⇒ 18 products were generated, including environmental impact zone, biodiversity baseline, fisheries, wildlife rescue, compensation and biological corridors, cetaceans, General Biodiversity Plan, climate change, ecosystem services, waste management plan, community safety plan, effluent management, cleaner efficiency and production plan, emissions and GHG management, ESMS and initial self-assessment.





ISLAND AND COASTAL DEVELOPMENTS



Bastimentos Island, Bocas del Toro Province

FOLLOW-UP AND MONITORING

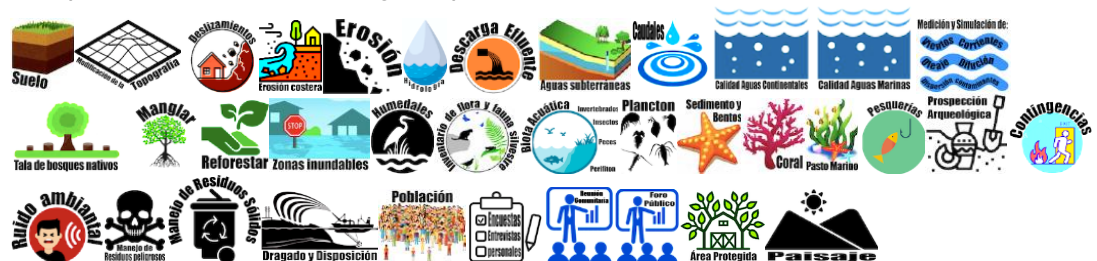
⇒ Inspections and semi-annual reports were conducted to quantify compliance with the implementation of mitigation procedures; Permits were processed, and monitoring was carried out.



Mar 2004 – Jul 2006

VARIOUS EIS

⇒ Impacts were assessed and mitigation procedures were created to:



Feb 2005 - Jul 2006

RED FROG BEACH, PHASE 2

Feb 2003 - Mar 2004

RED FROG BEACH

Jul-Aug 2004

RED FROG BEACH MARINA EIS, CATEGORY II,



## ISLAND AND COASTAL DEVELOPMENTS

### DESARROLLO TURÍSTICO DE COIBA, S.A.

### EXPANSION OF COIBA EXPLORER FISHING AND DIVING OPERATIONS

Coiba National Park, Gulf of Chiriquí

EIS Manager



Tue - Apr 1999

⇒ Impacts were assessed and mitigation procedures were created to:







ISLAND AND COASTAL DEVELOPMENTS

Mariato District, Veraguas Province

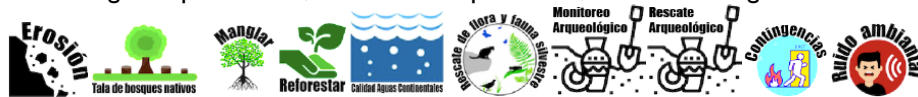
los Islotes  
 Panamá

FOLLOW-UP AND MONITORING



May 2011 to 2013

⇒ Semi-annual inspections and reports were conducted to quantify compliance with the implementation of mitigation procedures; Permits were processed, and monitoring was carried out.



LOS ISLOTES TOURISM DEVELOPMENT



May 2010

⇒ Impacts were assessed and mitigation procedures were created to:



ENVIRONMENTAL VIABILITY



Viabilidad Ambiental

November 2008

⇒ Analysis of environmentally permitted land uses, based on existing natural resources in the project area and existing legislation on such resources, evaluating the possibilities of development, by type of vegetation and current land use, from the perspective of current environmental legislation.





## ISLAND AND COASTAL DEVELOPMENTS

ISLA ECOLÓGICA, S.A.

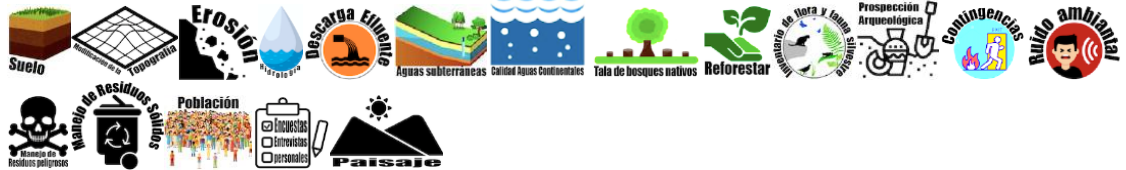
PUENTES DEL MAR LUXURY ECO  
RESORT

Bocas del Toro Province

⇒ Impacts were assessed and mitigation procedures were created to:



Sep 22, 2004





## ISLAND AND COASTAL DEVELOPMENTS

CHEN & ASSOCIATES / PANAMA  
DRY DOCKS

VEGETATION AND ENVIRONMENTAL  
SENSITIVE AREAS REPORT

Fort Sherman, Colon

⇒ Vegetation types were evaluated, and flood-prone and landslide-prone areas were identified, based on satellite image analysis, three-dimensional topographic simulation, and slopes.



Viabilidad Ambiental  
September 2014





## ISLAND AND COASTAL DEVELOPMENTS

ERIC ZINTERHOFFER

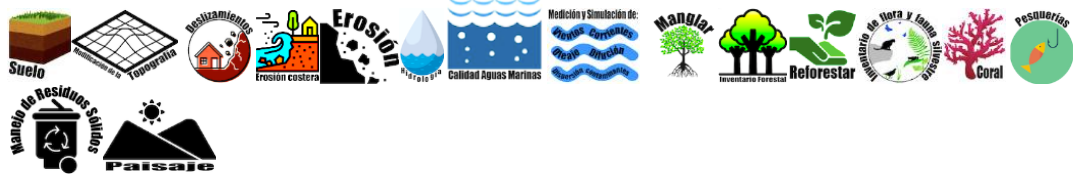
### PUERTO ESCONDIDO COVE COASTAL MANAGEMENT PLAN

Destiladeros, Pedasí, Province of Los Santos

⇒ A baseline of oceanographic and biologist factors of the inlet was developed. Actions were proposed for the management of the coral patch, anchoring, solid waste management, runoff, and erosion control, signaling and nesting of sea turtles on the beach.



January 2013





## ISLAND AND COASTAL DEVELOPMENTS



### ENVIRONMENTAL FEASIBILITY STUDY OF THE CAÑAVERAL PROJECT

Valiente Peninsula, Bocas del Toro Province



Viabilidad Ambiental

March – August 2012

⇒ Development possibilities were evaluated, by type of vegetation, current land use, wetlands, and flood zones, from the perspective of current environmental legislation. Other environmental variables were also considered, such as climate, land use plans, soil types, hydrology, oceanography, terrestrial fauna, coral reefs, mangroves, fisheries, and archaeology. The neighboring communities to be integrated into the development of the project were identified. The final product consisted of a zoning plan for development and conservation, establishing standards for each zone. In addition, the procedures for obtaining environmental permits were described and the risks and obstacles to obtaining environmental permits were identified.





## ISLAND AND COASTAL DEVELOPMENTS



### THE PEARL ISLAND MANAGEMENT INC.

#### ENVIRONMENTAL FEASIBILITY STUDY FOR THE DEVELOPMENT OF BAYONET AND CAÑAS ISLANDS

Las Perlas Archipelago



Viabilidad Ambiental  
October 2011

⇒ The possibilities of development were evaluated, by type of vegetation and current land use, from the perspective of current environmental legislation. Other environmental variables were also considered, such as climate, land use plans, soil types, hydrology, oceanography, terrestrial fauna, coral reefs, mangroves, fisheries, and archaeology. The neighboring communities to be integrated into the development of the project were identified. The final product consisted of a zoning plan for development and conservation, establishing standards for each zone. In addition, the procedures for obtaining environmental permits were described and the risks and obstacles to obtaining environmental permits were identified.





## ISLAND AND COASTAL DEVELOPMENTS

### WEST COAST FISHING CLUB

### ENVIRONMENTAL FEASIBILITY STUDY FOR A PIER IN PUNTA COCO

Isla del Rey, Las Perlas Archipelago



⇒ Environmental analysis of two sites to build and operate a pier and/or a marina at two Punta Coco sites. The parameters analyzed included depth, waves, type of bottoms, coral reefs, mangroves, tides, current use of soils and vegetation to anchor the supporting infrastructure on land. The procedures for obtaining environmental and archaeological permits were described.







## ISLAND AND COASTAL DEVELOPMENTS

### LAND CAPITAL GROUP

### PLAYA GRANDE ENVIRONMENTAL ZONING

Boca Chica, Chiriquí Province

⇒ Analysis of environmentally permitted land uses, based on existing natural resources in the project area and existing legislation on such resources, evaluating the possibilities of development, by type of vegetation and current land use, from the perspective of current environmental legislation.



Viabilidad Ambiental  
March 2007





## ISLAND AND COASTAL DEVELOPMENTS



### ENVIRONMENTAL VIABILITY OF PLAYA DIABLO FOR A HOTEL COMPLEX

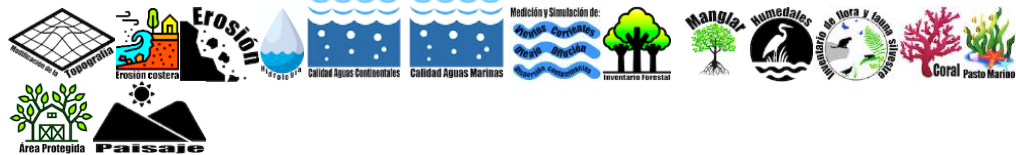
Sherman, Colon Province

⇒ Evaluate the environmental quality for the recreational use of Playa Diablo. It was concluded that the hotel could not be built on the site due to various environmental and health factors.



Viabilidad Ambiental

Aug 2003 - Feb 2004





AGROINDUSTRY



TRACKING AND MONITORING OF ELETA COFFEE

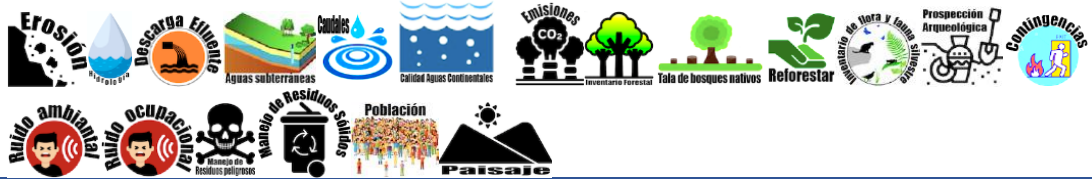
Piedra Candela, Chiriquí Province



⇒ Semi-annual reports are prepared that verify compliance with the execution of operating activities, through field inspections and analysis of the results of monitoring effluent, noise, and emissions.



March 2016 to date





AGROINDUSTRY

ELETA

ENVIRONMENTAL DUE  
DILIGENCE OF BARÚ ESTATES

Finca Nahual, Volcano, Chiriquí  
Province



- ⇒ Review of maps, environmental documentation provided by the Client and environmental standards associated with the Barú Volcano National Park.
- ⇒ Recommendations were issued on possible uses and prohibitions in the areas of the farm inside and outside the National Park; and short-term (immediate) and medium-term (1 year) actions were identified to comply with environmental standards and fulfill the commitment of the Alliance for the Million Hectares.



September 2020





## INSTITUTIONAL STRENGTHENING

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BANCO DE DESARROLLO  
DE AMÉRICA LATINA  
Aug 2013 – Feb 2016

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### ENVIRONMENTAL AND SOCIAL STRATEGY OF THE NATIONAL SANITARY SEWERAGE INSTITUTE (IDAAN)

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- ⇒ Restructuring of the Environmental and Social Units of IDAAN.
- ⇒ Detailed procedures were developed.
- ⇒ Products and delivery times were listed.
- ⇒ The organizational chart of the institution was restructured for new environmental and social functions, Profiles of the necessary personnel.
- ⇒ A budget was prepared to enable the new units and annual operating budgets; necessary operating equipment; and computer technology to connect all directorates to their work.



## INSTITUTIONAL STRENGTHENING

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Jul - Oct 2005

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### IMPLEMENTATION OF THE TOURISM STRATEGY OF THE COASTAL MARINE ZONE OF THE PROVINCE OF DARIÉN

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- ⇒ Prepare a sample of possible development projects of immediate initiation for the tourism development of the marine-coastal zone.
- ⇒ A diagnosis of the coastal zone of the province of Darién was carried out to identify, map and characterize its ecotourism offer.
- ⇒ An economic and technical feasibility study was prepared for each identified project, generating six pilot projects.



**Strategy:**

Nov 2001 – Apr 2002

**Indicative Projects:**

Jun - Nov 2002

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### DIAGNOSIS AND INDICATIVE SAMPLE OF PROJECTS OF THE PRODUCTIVE SECTORS OF TOURISM AND FISHERIES, FOR THE SUSTAINABLE DEVELOPMENT STRATEGY OF BOCAS DEL TORO

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- ⇒ Make a participatory diagnosis of the potential and opportunities existing in the study area for the Fisheries and Tourism sectors, as well as the obstacles and problems they face, compatible with the general objective of the Sustainable Development Strategy of Bocas del Toro.
- ⇒ A sample of possible development projects for immediate initiation in the tourism and fisheries components was prepared.
- ⇒ An economic and technical feasibility study was prepared for each identified project, generating four pilot projects and eleven indicative projects.



## INSTITUTIONAL STRENGTHENING

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Tue – Nov 2002

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### SUPPORT FOR THE DEVELOPMENT STRATEGY FOR THE MANAGEMENT OF MARINE AND COASTAL RESOURCES OF THE REPUBLIC OF PANAMA

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- ⇒ A diagnosis of the institutional capacity of the General Directorate of Coastal Marine Resources (DGRMC) of the Panama Maritime Authority (AMP) was carried out.
  - ⇒ A proposal for a strategy to be followed by the Bank for the strengthening of the DGRMC was prepared, considering the new responsibilities established by current legislation.
  - ⇒ An Operations Plan and Terms of Reference for the implementation of technical cooperation were developed.
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## PROTECTED AREAS

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### RONALD MCCARTHY FOR RURAL POVERTY

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### REGULATIONS FOR THE CONCESSION OF PUBLIC SERVICES IN THE PROTECTED AREAS OF AZUERO

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**Marine  
Protected Areas  
Specialist**  
Sept – Oct 1999

⇒ The facilities and attractions of the protected areas, the capacity of the personnel, the administrative systems, the accesses were evaluated; In addition, community leaders were interviewed to define the relationship of communities with protected areas. The final product was used to establish the standards, which were provided to a lawyer to generate the Administrative Resolution that would regulate the concession of public services in the protected areas.

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## PROTECTED AREAS



**Marco Diaz**  
Editor  
Nov 2020-Feb 2022



### EXTENSION OF BOUNDARIES AND MANAGEMENT PLAN OF THE CORDILLERA DE COIBA MANAGED RESOURCES AREA (ARMCC) EDITOR



- ⇒ An interdisciplinary team led by Dr. Héctor M. Guzmán (STRI) developed a diagnosis of the ocean protected area and 100 km around using remote sensors. Based on this, new limits were proposed to expand the protected area. This allowed Panama to comply early with the "30x30 Initiative", which proposes to protect sites of particular importance for biological diversity through protected areas and other effective area-based conservation measures, covering by 2030 at least 60% of such sites and a minimum of 30% of the land and marine surface with at least 10% subject to strict protection, proposed by the United Nations.
- ⇒ The diagnosis was also used to define the two management zones that comply with protecting 2/3 of the protected area and allowing sustainable and responsible fishing activities, as required by the IUCN definition for a managed resource area. It is the first zoning of a protected area that was worked as a three-dimensional management unit, limiting the fishing zone to -70 m depth, and protecting the rest of the water column and the total seabed and its resources to a depth greater than -4,000 m.
- ⇒ Six management programs were defined to manage, communicate, and educate the public, investigate, and monitor resources and ecosystems, offer new sustainable fishing techniques to commercial fishermen, control and surveillance of the activities carried out, and evaluation and monitoring of the management plan itself. Management will be managed by a Governance Committee composed of national authorities, representatives of environmental NGOs, scientific organizations, and commercial fishermen.
- ⇒ Three public consultation periods were held, including two public forums and 21 meetings with medium (semi-industrial) and high altitude (industrial) fishermen and Colombian authorities to integrate the ARMCC with the protected areas of Malpelo and Yuruparí-Malpelo, improving the integration of the Eastern Tropical Pacific Conservation Marine Corridor (CMAR) between the Galapagos (Ecuador). Cocos Island (Costa Rica), Malpelo and Gorgona (Colombia) and Coiba (Panama).



## PROTECTED AREAS



**Marco Diaz**  
**Editor**  
Aug 2022-Mar 2023

### EXTENSION OF THE LIMITS OF THE MANAGED RESOURCES AREA BANCO VOLCÁN (ARMBV) EDITOR



- ⇒ An interdisciplinary team led by Dr. Héctor M. Guzmán (STRI) developed a diagnosis of the ocean protected area and 100 km around using remote sensors. Based on this, new limits were proposed to expand the protected area. This allowed Panama to protect 54% of its seas.
- ⇒ A period of public consultation was held, including meetings with deep-sea fishermen (industrialists), NGOs and Colombian authorities.
- ⇒ With this expansion, the ARMBV is integrated with the international initiative "Southwest Caribbean Transboundary Biosphere Reserve" (formerly known as "Great Seaflower"), improving connectivity originated by a system of marine currents and nuclei that supports the genetic exchange that sustains important fisheries in the coastal-marine areas of Nicaragua, Costa Rica, Colombia, and Panama.

**BASELINE SAMPLING AND MONITORING OF:**



⇒ Quality of inland and marine waters, with multiparameter, which allows us to make measurements on the surface up to 30 m deep.

⇒ Terrestrial vertebrates  
 Identification of footprints, eses, edges, fog nets, cameras, and traps.



⇒ Fish and aquatic invertebrates, with electric rod, cast net and / or trammel.



⇒ Aquatic insects, perifiton and plankton, by scraping rocks and plankton net.



⇒ Marine sediments and benthos, with Pulsen dredger of 40 cm<sup>3</sup>.

⇒ Coral reefs  
 Through the International Transept methodology.



⇒ Oceanic and coastal currents with Lagrangian drifters and current meters.  
 ⇒ Current simulations  
 ⇒ Pollutant dispersion simulations  
 ⇒ Wave simulations, using Wind Cast and virtual buoys.



⇒ Environmental Noise, with sound level meter calibrated on site, humidity and winds are recorded.



⇒ Logging, erosion, and sedimentation  
 With drones, ortho-mosaics are generated to verify that logging remains within the project area approved by the authorities, certify if the sediment leaves the area and track the path of the sediment leaving the area to assess its impacts on the affected surrounding areas.



⇒ Inductions  
 Training on environmental, social, archaeological, national, and international regulations.

