

IPROMO 2016

**Managing Mountain Resources and
Diversities: The Role of Protected
Areas**

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About me:

- Environmental Science, Harvard University, Extension School.
- Work: liaison deviations to federal regulation between industry and PHMSA. Create federal standards.
- Love the outdoors, people, experiencing our beautiful world, and most of all, learning!



Science and Innovative Technology Fair for Regional Sustainable Development

Isla San Andrés, Colombia

Science and Innovative Technology Fair for Regional Sustainable Development

Tema: Ciencia y tecnologías innovadoras para el desarrollo sostenible de la región.

Objetivo: Mostrar a través de proyectos tecnológicos de innovación y desarrollo sostenible que la educación y en particular de la ciencia, es uno de los hilos para la reconstrucción del tejido social de nuestra isla y el motor para el avance de nuestras futuras generaciones.

Público objetivo: Jóvenes

Participantes: 100 jóvenes

Fecha: 30 de enero a 4 de febrero de 2017.

Actividad 2	
Nombre del Taller:	
Encargado:	
Duración:	4 días, 8 horas diarias
Materiales:	Se utilizaran materiales naturales para la creacion de filtros de agua sostenibles.
Objetivo Específico:	Equipar a los jovenes partipantes con un marco teorico que les permita entender la purificacion de agua en la naturaleza y los tipos de materiales sostenibles que pueden ser utilizados para crear filtros de agua. Como actividad final, los particiapntes crearan sus propios filtros.
Público Objetivo:	Jovenes de grado 9-11 o con educacion tecnica
Ponente:	Teresa O'Doro, Magister – Universidad de Harvard
Espacio Destinado:	

Workshop Goal:

Establish Areas of Water Quality Concern

- Create a map that includes information from the "San Andrés' aquifer model" and the "Historical Analysis of coastal water quality"
- Link designated areas of concern to communities occupying that geography: social background, occupation, etc.

Create and implement a Water Purification Training module

- Teach and discuss
 - the unique hydrologic cycle found in San Andrés (including groundwater cycles)
 - basic elements of groundwater recharge, flow, saline intrusion.
 - how nutrient contamination transports occur in the environment.
- Using local materials we will create a water filtering device.

Case Study: San Andrés Island

- Location: W 91°25'00"-W 77°08'00"/N 20°23'00"-N 7°02'00
- San Andrés: 25 Km²
- Average precipitation 1900mm per year
- 65,000 inhabitants (Y2010)
- 25°C average temperature
- Economic activity: tourism and derived commerce and service industries
- “the centerpiece of Colombia’s Seaflower Biosphere Reserve ...[which] covers 300,000 square kilometers”
- Designated Marine Protected Area in 2005. MPA is considered a success.

Case Study: San Andrés Island

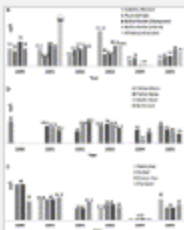
- 80% of water supply comes from groundwater
- Yet very little is known about its aquifer
- 8% of population has sewer service hookups.
- Sewer services do not entail wastewater treatment

Case Study: San Andrés Island

- What is the Cove area populated by? Industry%? (runoff/aquifer)

- 1. Introduction
- 2. Materials and methods
- 3. Results
- 4. Discussion
- 5. Conclusions
- Acknowledgements
- References

Figures and tables



3.6. Fecal coliforms

Only since 2001, the counting of coliforms (fecal and total) are expressed as more probable number (MPN)/100 mL. From 1997 to 2000, they were estimated as colony-forming units (CFU). Therefore, we only present the data from 2001 to 2005, since the two methods are not comparable. Hotel Isleño presents counting of 210 NMP/100 mL during both seasons of 2001 (Table 2). In Punta Norte 11,000 NMP/100 ML were detected in the rainy season of 2001. Alcantarillado has high values during most of the sampling, El Cove has high number of coliform during the dry season of 2001 (16,000 NMP) and 2003 (300). In Yellow Moon 11,000 NMP/100 mL were detected in the rainy season of 2001, Hooker Bay (mangrove) revealed high numbers in 2001 (both seasons 2003 dry season and 2004 rainy season). The other site in Hooker Bay (plant) had high concentrations of fecal coliforms (ranging from 210 to >16,000 NMP/100 mL) during the whole time log examined, with the only exception of the rainy season of 2002, when 60 NMP/100 mL were detected.

Table 2.
Fecal coliforms (NMP/100 mL) during dry and wet seasons.

Site	2001		2002		2003		2004		2005	
	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet
Punta Hansa	90	90		40	<2	<2	13	<2	<2	<2
Hotel Isleño	210*	210*		60	<2	<2	2	<2	<2	<2

References

- Mauricio Bedoya, Maria Victoria Velez, Jaime Ignacio Velez, and German Poveda. "Modelo Numérico Del Acuífero De La Isla De San Andrés, Colombia." (2010). Print.
- Providential outcome: a winning combination of isolation, local involvement and a broad ecological remit are making the management of the seas around Colombia's San Andrés islands a model for other conservationists.(NEWS FEATURE). Nature, Jan 10, 2008, Vol.451(7175), p.122(2). <http://www.nature.com.ezp-prod1.hul.harvard.edu/news/2008/080109/full/451122a.html>
- Historical analysis (2000–2005) of the coastal water quality in San Andrés Island, SeaFlower Biosphere Reserve, Caribbean Colombia. [Gavio, Brigitte](#) ; [Palmer-Cantillo, Shelly](#) ; [Mancera, J. Ernesto](#)
- Yabrudy, Javier. "Discriminación Étnica e Ingresos En La Isla De San Andrés, Colombia/Etnic Discrimination and Income in San Andrés Island, Colombia." Revista de Economía del Rosario 14.2 (2011): 229-61. ProQuest. 28 June 2016 .