

Caño Martín Peña (CMP) Health Impact Assessment



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Authors: *B. Rivera-García, K. Avilés, D. Pérez-Agú, H. Pérez, P. Sheffield, L. Rodríguez, P. Landrigan.*

Hola my name is BRG and I'm presenting on behalf of my partners the Ichan SOM at MT Sinai-PEHSU and the Corp For the ENLACE Project for the Martin Pena Chanel (Cano Martin Pena) or CMP for short . I'm the epidemiologist consulting for the group. But, before we begin I'd like to take the opportunity to thank my co-authors: Katia Avilés, Damiris Pérez, Perry Sheffield, Hilda Pérez, Livia Rodríguez and Phil Landrigan but most of all the organizers for inviting us here today.

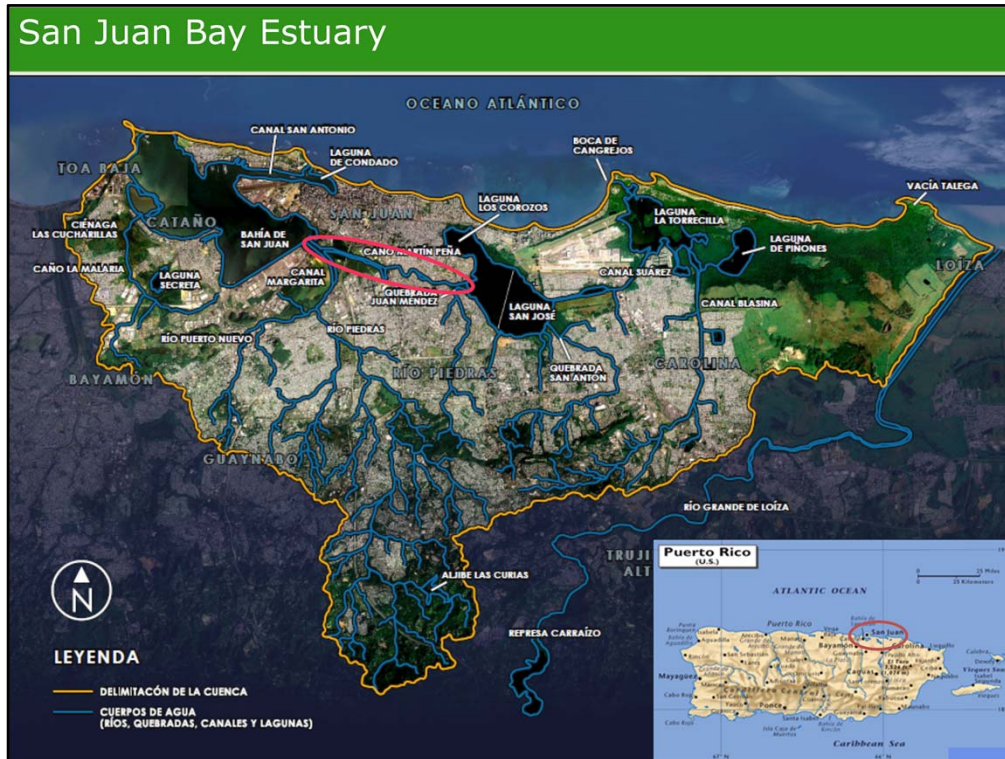
This is an aerial picture of the Caño (Channel) taken around 1936



Agricultural decline starting in the 1930s and Industrial development in the 40s saw a rural migratory wave to the city. Many of the families took up residence along the mangrove shoreline of the Caño. These were improvised communities.

In addition, government policies promoted landfilling activities of the mangrove and its shorelines, as ways to address low income housing for these families and vector control in the fight against malaria and later dengue.

Here you can appreciate how the Cano looked in 2009. Today there are some areas you can cross on foot. The western segment which opens to the San Juan Bay was dredged in the 1980's to make way for the Acuaexpresso, a ferry transportation system connecting Old San Juan, the municipality of Catano across the SJ bay and the 'Golden Mile' Financial District where the CMP is actually located. Dredging of the eastern portion was overlooked.



The CMP is part of the San Juan Bay estuary, an important ecological waterway complex. The insert map highlights in red the Estuary within the island to give you an idea of general location. Again circled in red, on the larger map, is an illustration the CMP's location in relation to the Estuary, now this is the eastern, non-dredged portion of the channel and the one that concerns us today.

Landfilling activity, lack of sewage lines and storm drains and other infrastructure in certain areas, natural climate disasters, natural sedimentation processes and the spontaneous nature of some of the CMP communities, and other issues all have lead over the years to near blockage of the eastern half of the CMP. Leading to numerous environmental issues but most importantly human health and social justice issues.

Community flooding



One of the biggest problems facing the communities along el Cano in recent years is flooding....not only do they readily flood with relative ease with light rain showers and tidal ebbs, but flood waters take longer to recede due to a lack of infrastructure and decreased natural flow of the Caño waters back to the ocean.

In 2002, 39% of the population reported that their home or surrounding areas were flooded between 1 and 20 times during the previous year. **In a representative survey conducted in 2011, 70% of respondents reported that their homes or street had flooded in the past three months.** These communities have to deal with perceptions of displacement and abandonment, besides water quality issues and other environmental and health stressors.

Water contaminants		
	Max levels (mg/L)*	Levels measured (mg/L)*
Mercury	0.011	0.88
Benzene	0.00035	0.055
Arsenic (H ₂ O)	.0000045	102
Arsenic (Soil)	*1.9 mg/K	*5.16
Toluene	0.2	183
Ammonia	0.1	15.20
Fecal Coliforms	*2,000 col/100ml	*2,000,000
Enterococci (Direct contact)	*200 col/100ml	*1,200,000

Source: USEPA 2011

These are some of the most recently encountered contaminants as sampled by EPA, **SJBE**, ENLACE and other agencies in 2011...as you can observe all measured levels well surpass allowable maximum EPA levels. And these are just some of the things that residents are exposed to when the Cano waters flood the communities. These do not address issues related to anxiety due to grey skies, work or school days lost, or waddling in contaminated waters. Displacement and gentrification for development of high end waterfront housing not unlike MIAMI's waterfront houses and marinas, is also a concern among residents.

CMP Communities



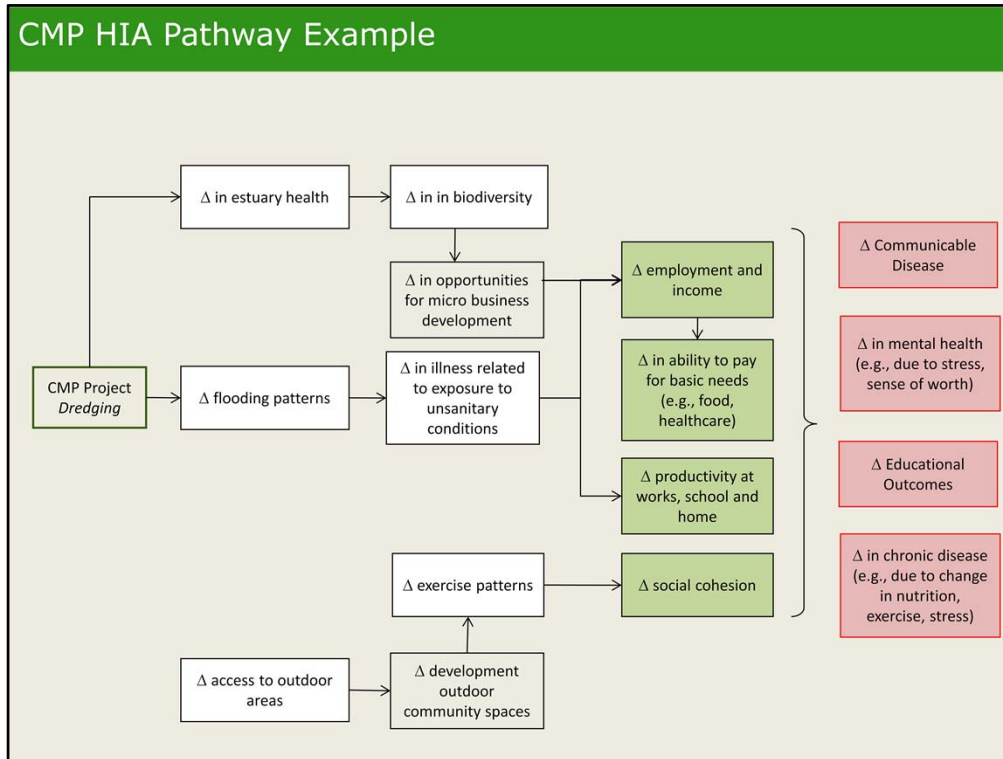
Overall, there are 8 Communities along the CMP Project that represent approximately 26K individuals and some 7K occupied households.

Population density is a little over 22K inhabitants per square mile, the highest in Puerto Rico according to 2010 US Census)

These are for the most part working class families. 19.5% of the residents are immigrants from neighboring Dominican Rep. On average

Residents have lived in the District since 1975, over 30 years, an indicator of stability, and 50.4% of housing units are resident owned (compared to 21% island-wide).

There is a strong sense of belonging in these communities which is one of the reasons why moving out of the community (in other words displacement) is not an option for the vast majority of residents.



This HIA looks at the health impacts of dredging from changes to a)infrastructure b)home relocation and c)water quality. The dredging is just one of four components of a comprehensive development plan for the CMP as developed by the communities themselves.

We are in the process of collecting existing data and undertaking some minor research projects to help us better punctuate the relationship between health issues such as (asthma, skin and GI disease, and mental heath stressors, etc) and living in el Caño.

Our hope is that the information gathered through this HIA will be heeded by stakeholders such as the Puerto Rico Legislature and US federal agencies involved in providing funding for the CMP Project (like the the Army Corps of Engineers, EPA and the dept of HHS)

We can also argue that **health benefits would not be confined to** Residents of the CMP but to Workgroups around the CMP communities, visitors to the area and it goes without saying, the Environment

Health data

Existing data

- Demographic profile
- Prevalence GI illness
- Women's health profile
- General health profile
- Asthma and allergic dermatitis pediatric profile

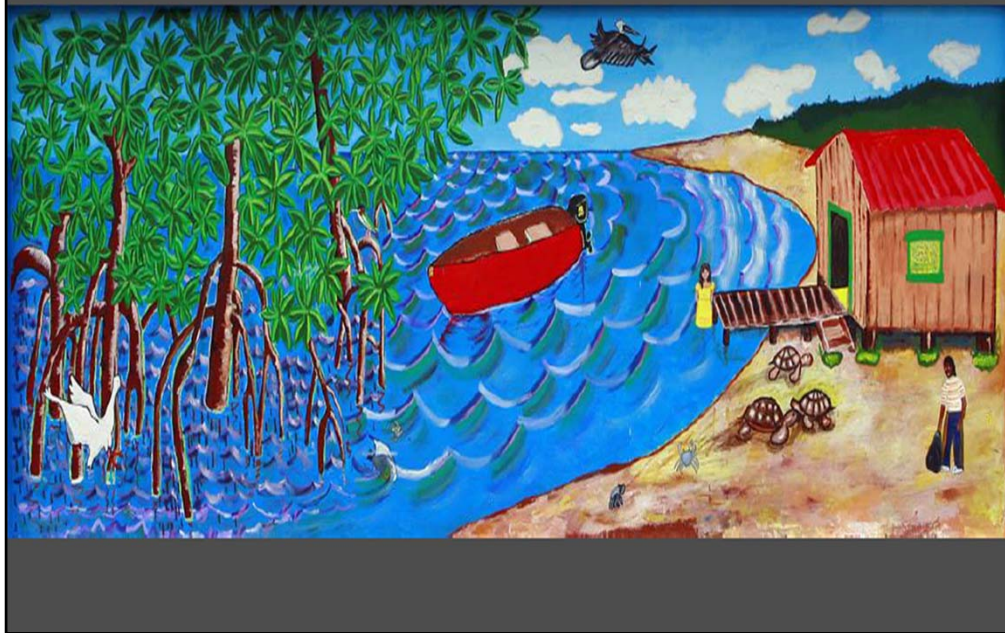
Research projects

- School flooding surveillance
- School environmental health assessment
- Focal groups
- Walkability study

There is some data already available such as ENLACE's demographic profile and several studies conducted by the Pub Hea Program at Ponce School of Medicine and Health Sciences and the Univ of Puerto Rico's SPH

As part of this HIA are undertaking several small research projects such as a school flooding surveillance system and a student conducted school environmental health assessment for the 12 schools within the CMP. We are also conducting several focal groups to ask about health and living in el Cano. Finally, we are considering conducting a walkability study with the help of the Pub Hea Pgm at Ponce School of Medicine.

Gracias



To our knowledge this is the first HIA ever conducted in PR, so we are 'newbies' to this realm. This is also the first time that health rather than the environment is being considered when addressing CMP issues.

We are interested in hearing your suggestions and ideas as we move forward. The Puerto Rico Legislature will convene in early spring 2014 to make critical decisions regarding funding for implementation of the CMP Project, needless to say our aim is to influence their decision.

Thank you for your attention this afternoon.