

IMPACTS OF EL NIÑO PHENOMENON IN THE PROVISION OF ECOSYSTEM SERVICES IN THE MANGROVE OF TUMBES (PERÚ)

Flores D.^{1,2}, Martínez A.¹, Céspedes L.¹ and Mendoza A.¹
1. Geophysical Institute of Peru.
2. University Agraria La Molina.



1

INTRODUCTION:

The northern coast of Peru is exposed to the impacts of El Niño phenomenon (FEN) in rural and urban areas; however, there is no synthesized information on the impacts on the mangrove ecosystem of Tumbes.

DISTRIBUTION OF BIODIVERSITY IN THE MANGROVE:

The distribution depends on the interaction of incoming freshwater, marine waters, and the tolerance to salinity of each species.

2

PHYSICAL IMPACTS OF THE FEN IN THE MANGROVE:

WHAT IS FEN?

Various months of anomalous climatic events including high sea surface temperatures and intense rains on the north coast of Peru.

El Niño phenomenon

General level

- Increased air temperature
- Increased sea surface temperature
- Increased precipitation

River/Basin level

- Increased river flows
- Increased erosion
- Increased dissolved oxygen

Mangrove/Local level

- Increased sediments
- Decreased salinity
- Local erosion
- Local stuarines clogging

3

IMPACTS IN ECOSYSTEM SERVICES:

Regulation:

- Reduction of salinity of the estuaries caused by the increase of the flows
- Catchment of estuaries caused by the increase of sediments coming from the rivers

Provision:

- Decreased vegetation cover: Mangle rojo and colorado (*Rhizophora mangle* and *harrisonii*)
- Decreased populations of "Concha negra" (*Anadara tuberculosa*) and "manglero crab" (*Ucides occidentalis*)

Support:

- Changes in biodiversity support

Culture:

- Alteration of scenic beauty
- Decrease in tourism



4

CONCLUSIONS AND RECOMMENDATIONS:

- One of the main impact caused by the FEN is the decrease in salinity, a physical change that alters and negatively impacts supply services in particular.
- This information should be included within the mangrove management and / or management plans, in order to have contingency plans in view of the potential occurrence of an FEN.