

# Avaliação do risco ambiental e para a saúde pública de um ambiente estuarino contaminado

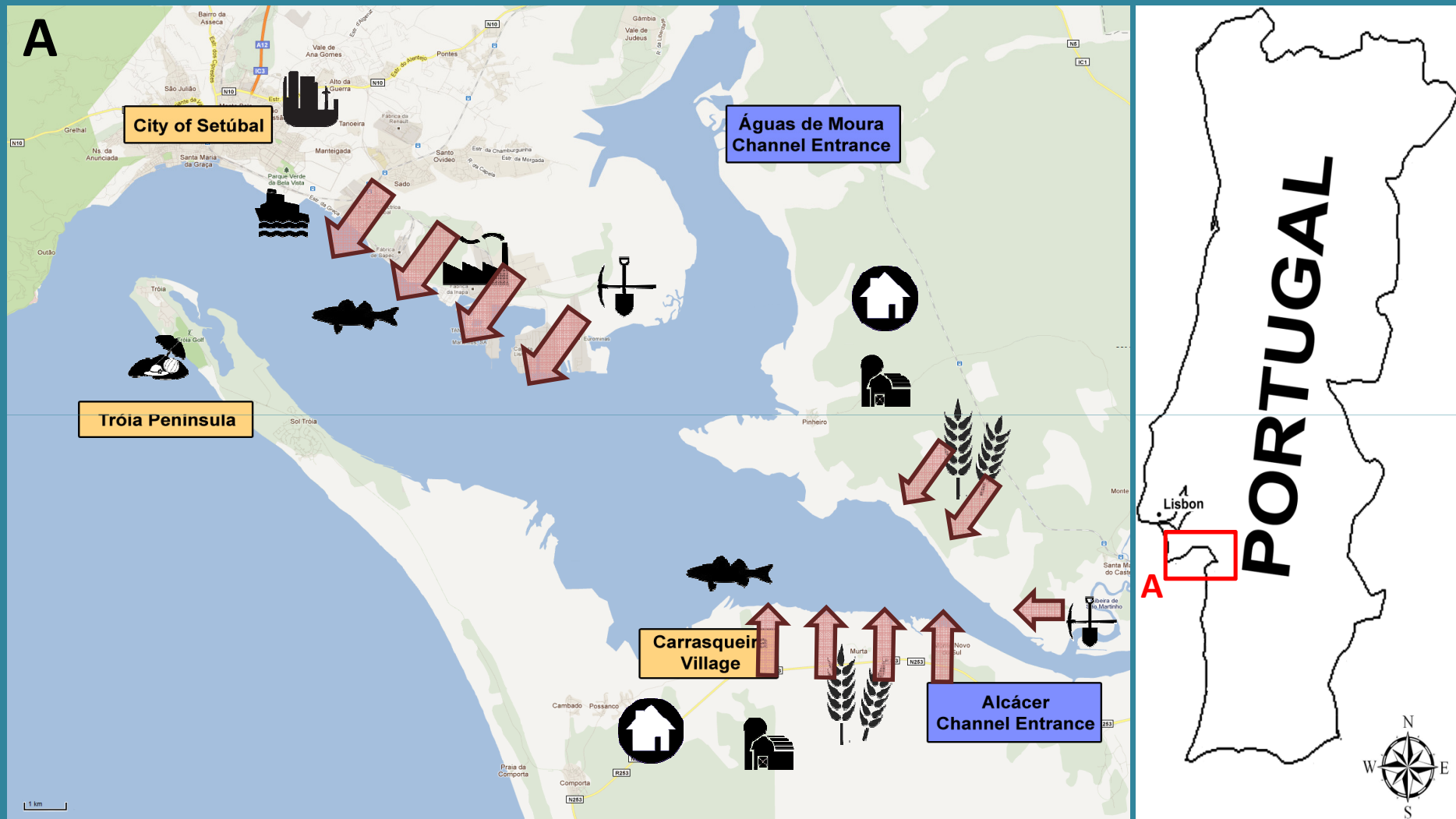
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# Study Area



An estuary is a semi-enclosed maritime area with limited self renewal capability which makes it particularly capable of retaining contaminants from different sources.

# Objectives

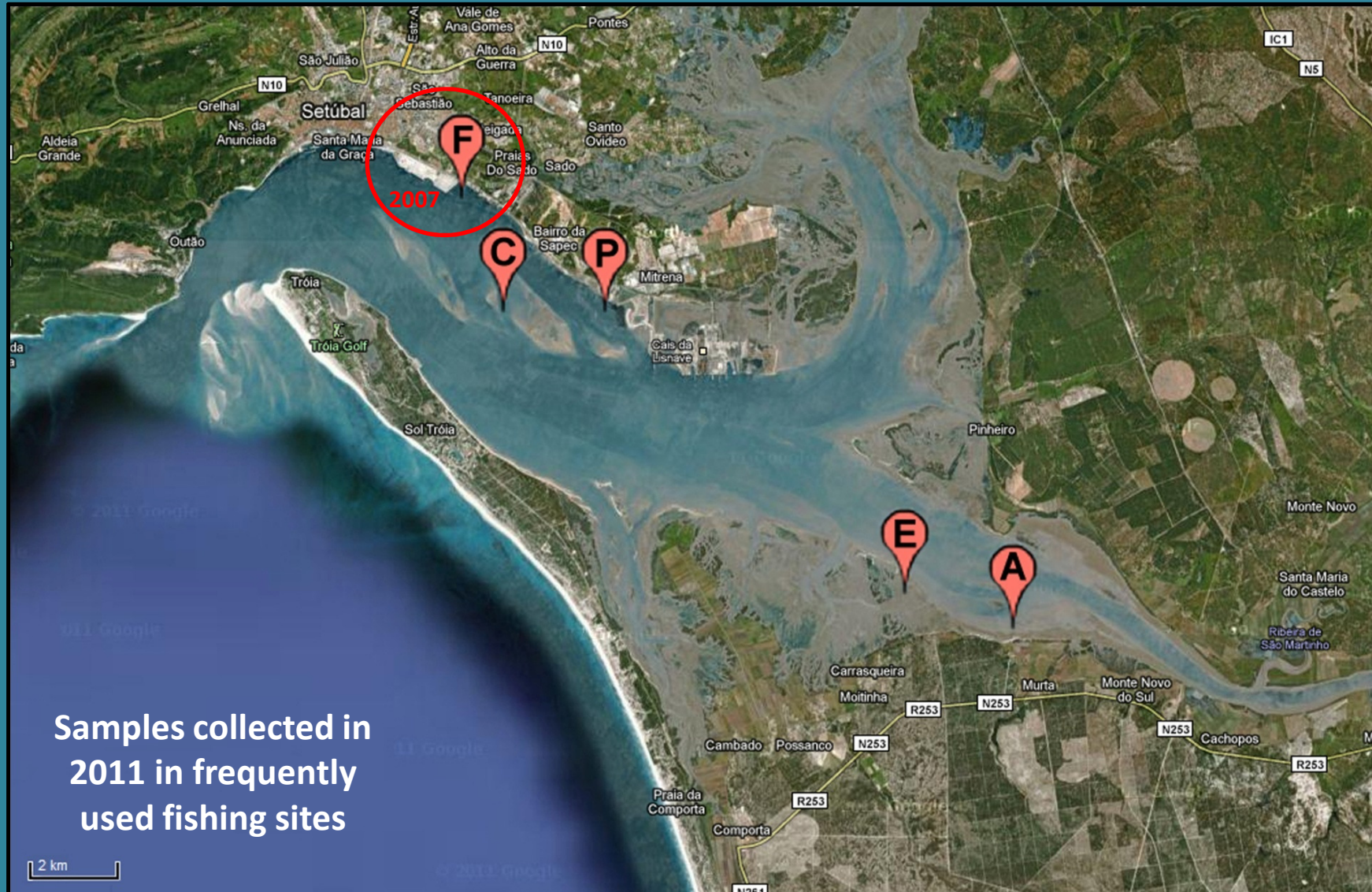
## Main Objective

Assess the potential ecological and human health risk of a contaminated estuarine environment

## Particular Objective

Characterize the cytotoxic and genotoxic potential of sediments from the Sado Estuary

# Sediment sampling



Adapted from: Google Maps. Available at <http://maps.google.pt/>. (Last accessed: September 26<sup>th</sup> 2011)

# Methods

Sediment  
characterization

Organic Contaminants determined by GC-MS

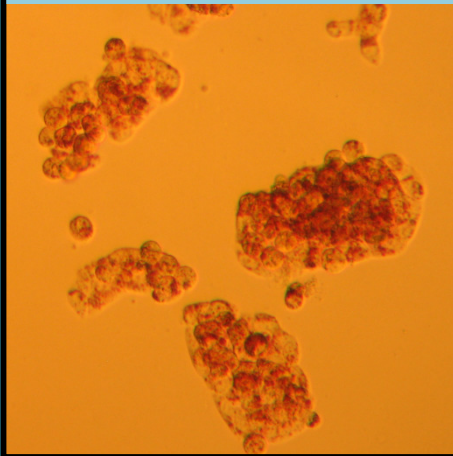
Metals determined by ICP-MS

Extract Preparation: methanol:dichloromethane (1:2), recovery in DMSO

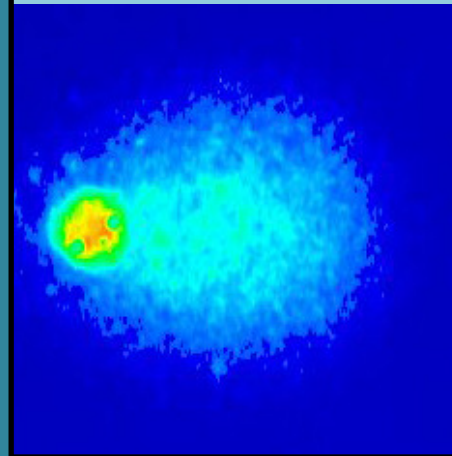
Cytotoxicity

Genotoxicity

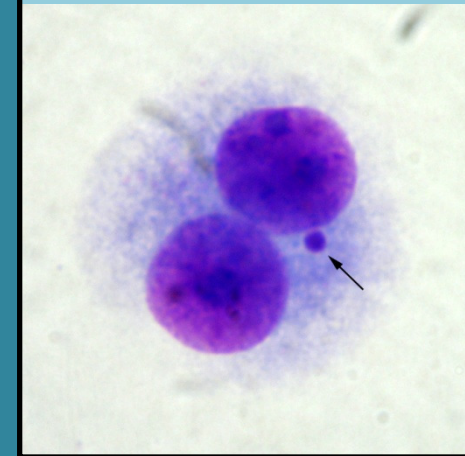
Neutral Red Assay  
(HepG2 Cells)



Comet Assay  
(With FPG)



Micronucleus  
Assay



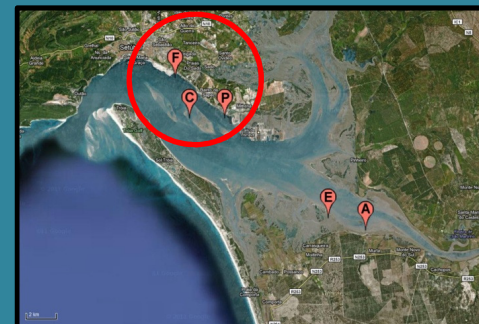
# Results

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# Discussion

# Northern Area

2 Cytotoxic and Genotoxic samples (F and P)  
1 Negative Sample (C)



## Sample F

## Sample P

## Sample C

Cytotoxicity

Cytotoxicity

Cytotoxicity

DNA Strand Breaks

DNA Strand Breaks

DNA Strand Breaks

Oxidative DNA damage

Oxidative DNA damage

Oxidative DNA damage

MN induction

MN induction

MN induction

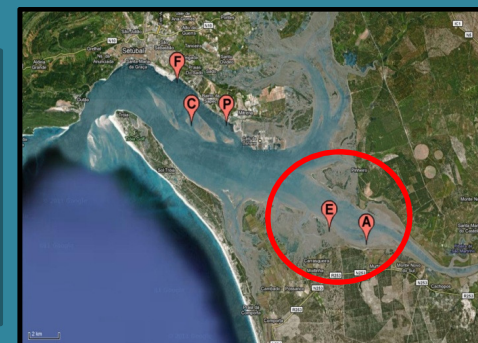
Contamination levels

Contamination levels

Contamination levels

# Southern Area

2 weak cytotoxic but genotoxic samples.  
Both samples presenting significantly high  
oxidative DNA damage.



## Sample E

Cytotoxicity

DNA Strand Breaks

Oxidative DNA damage

MN induction

Contamination levels

## Sample A

Cytotoxicity

DNA Strand Breaks

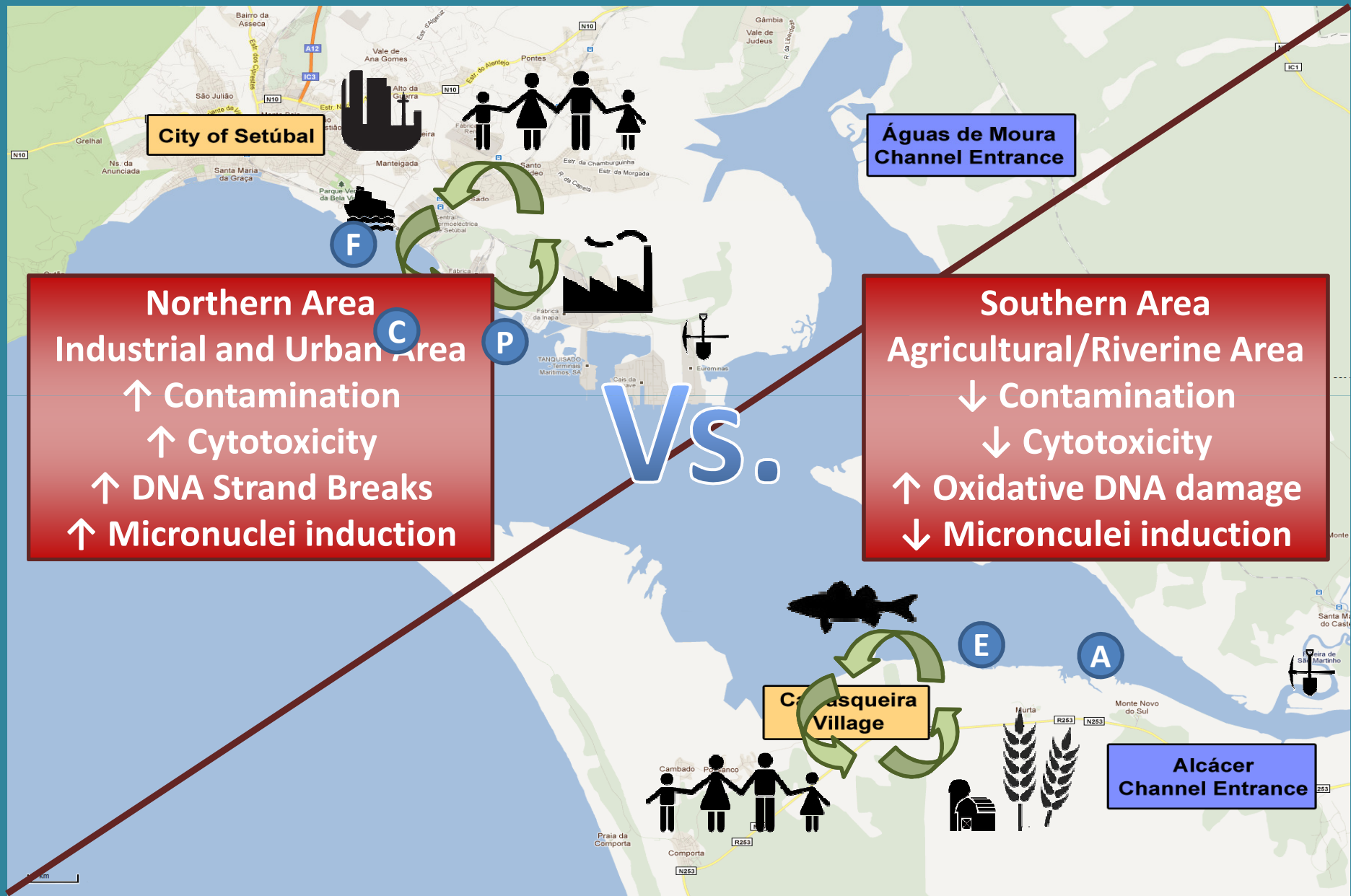
Oxidative DNA damage

MN induction

Contamination levels



# Conclusions



# Acknowledgements



Maria João Silva  
Henriqueta Louro  
João Lavinha  
Eleonora Paixão

Sandra Caeiro  
Maria Helena Costa  
Pedro Costa  
Sara Carreira



Work supported by the Foundation  
for Science and Technology  
(ref. PTDC/SAU-ESA/100107/2008)

# Thank You for your attention!