



CITTA' DI  
VENEZIA

**Department for Strategic and Environmental Projects**

**The Lagoon of Venice**

**An example of resilience...**

**but for how long?**

*- Claudia Ferrari -*



Length: 50 km

Width: 10/12 km

Average depth: 1.5 m

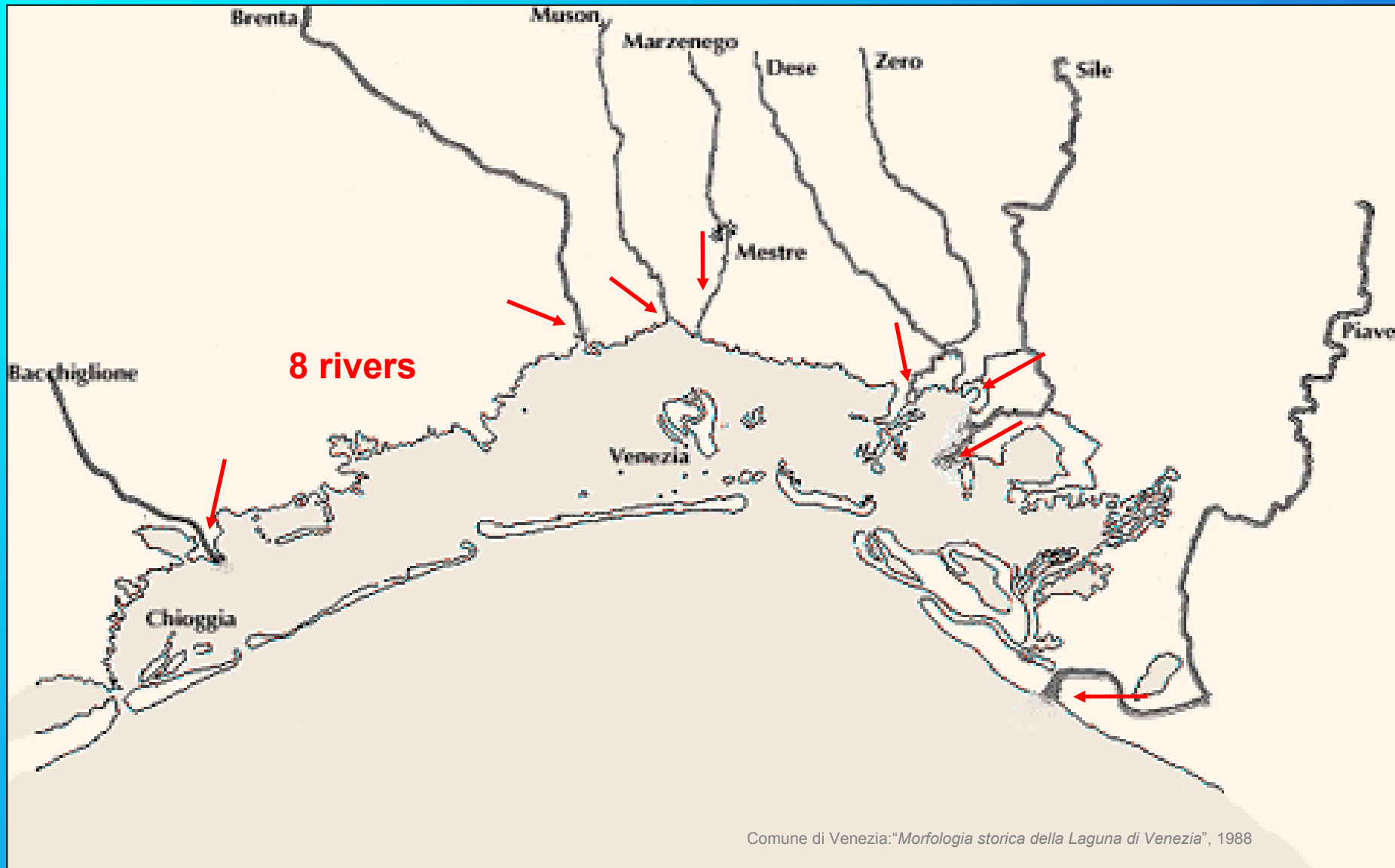
Inlets: 3

Max depth :46 m ( Malamocco inlet)

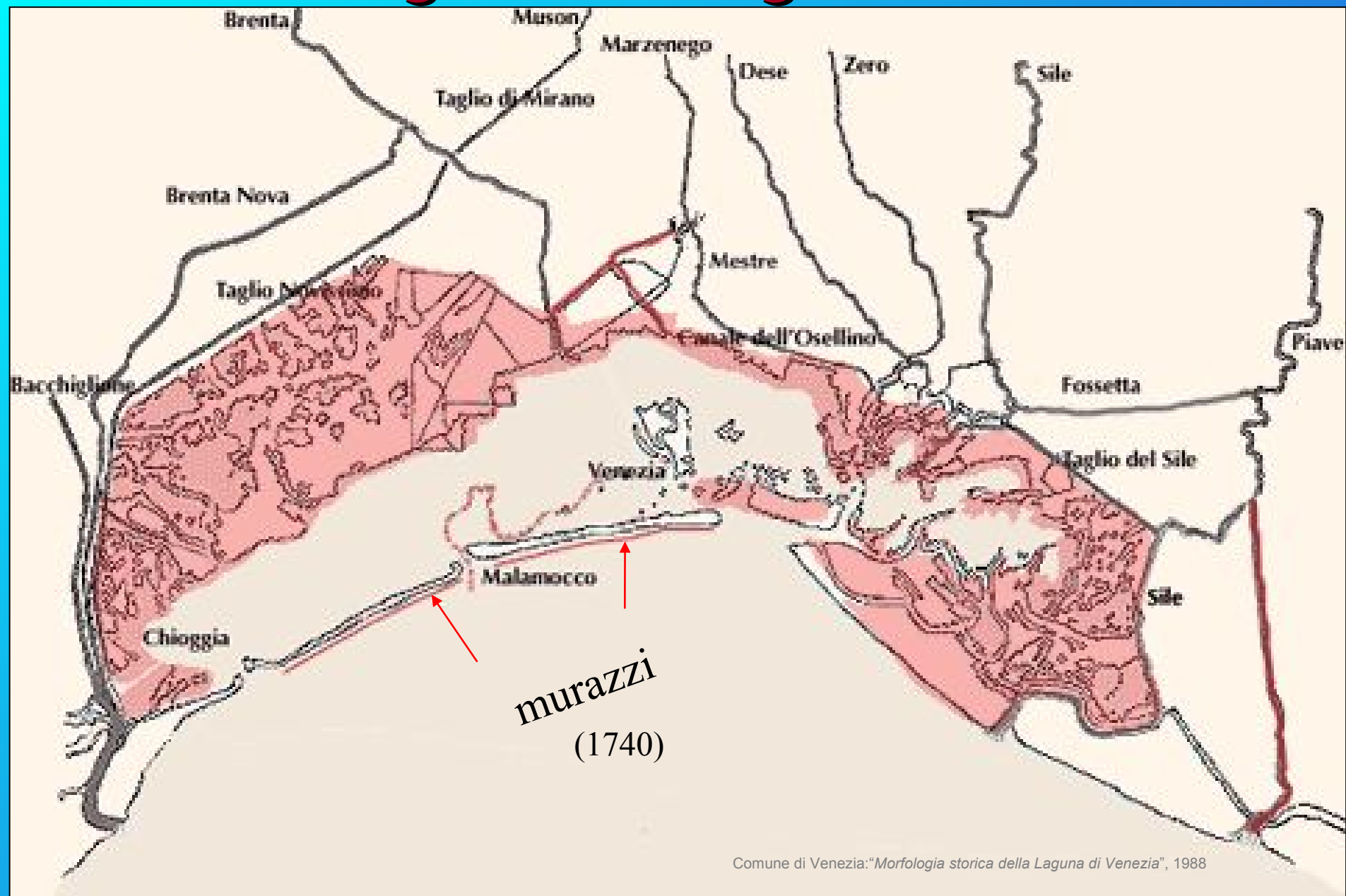
Number of islands: 50

Saltmarshes area: 40 km<sup>2</sup>

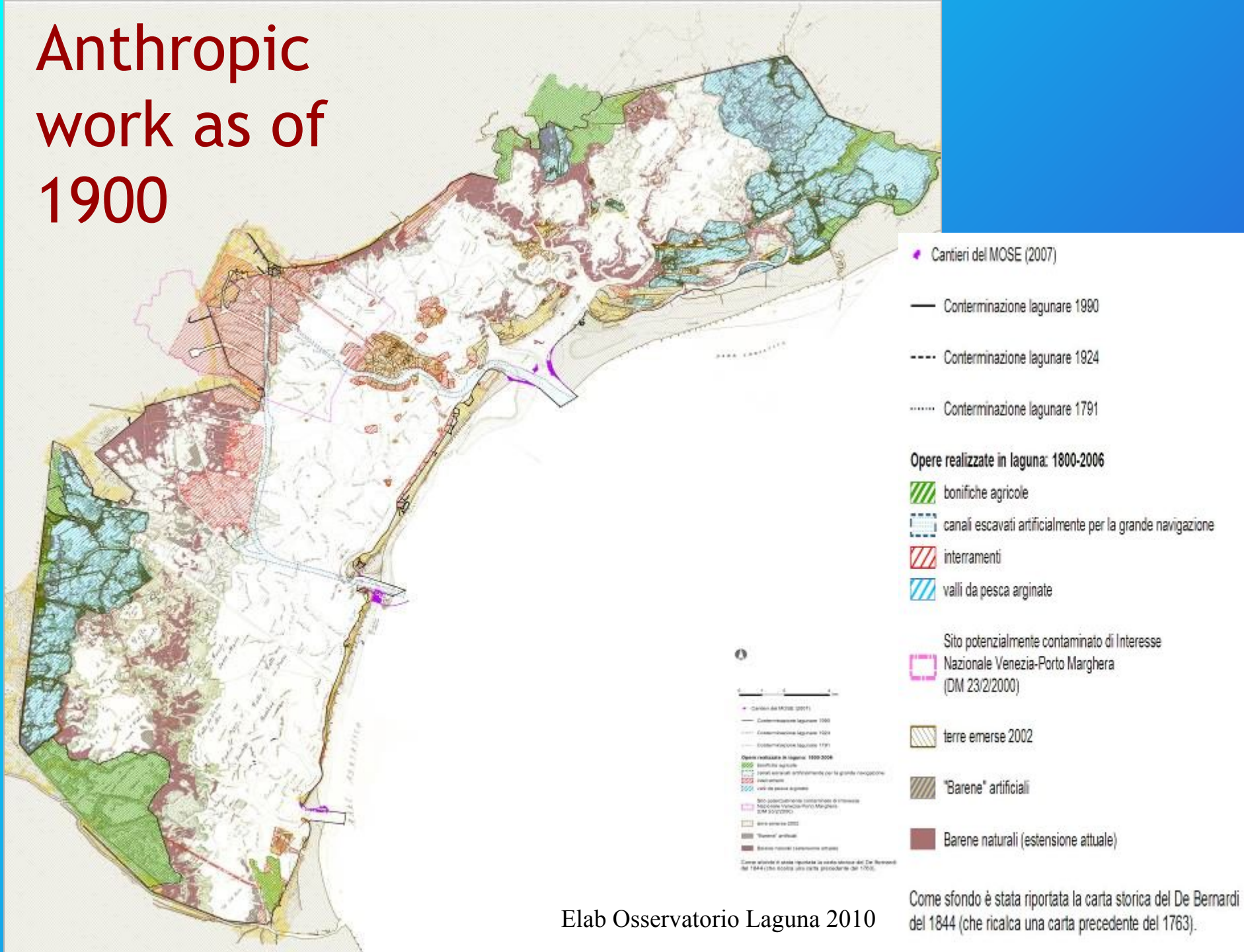
# The lagoon during the 1300's



# The lagoon during the 1700's



# Anthropic work as of 1900

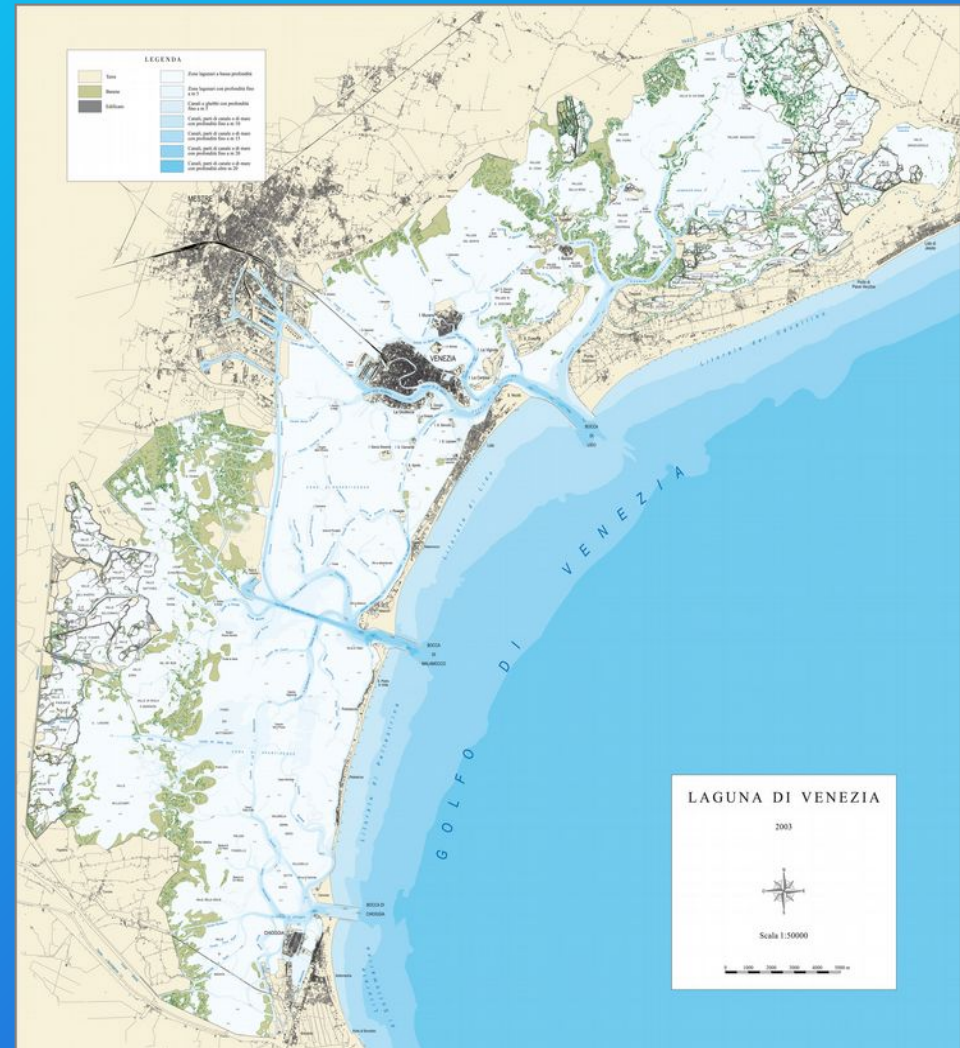
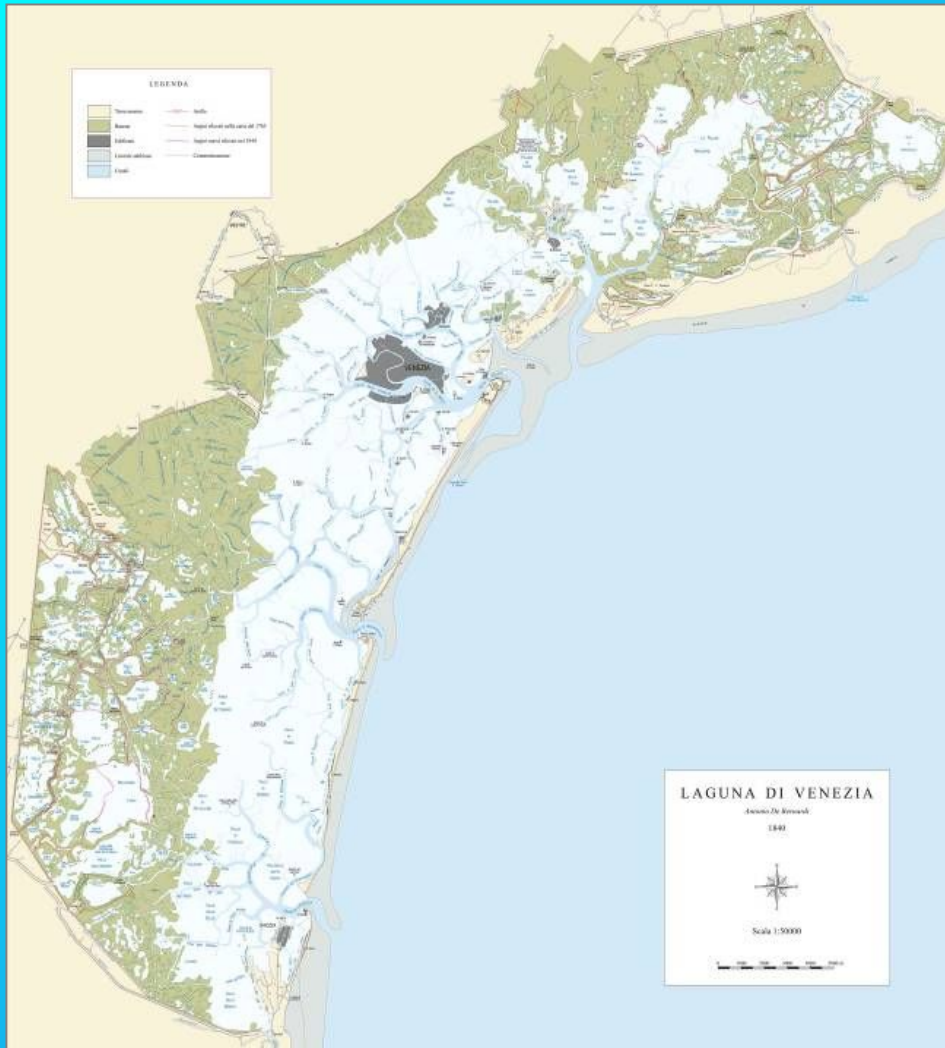


Elab Osservatorio Laguna 2010

Come sfondo è stata riportata la carta storica del De Bernardi del 1844 (che ricalca una carta precedente del 1763).

# 1840

# 2003

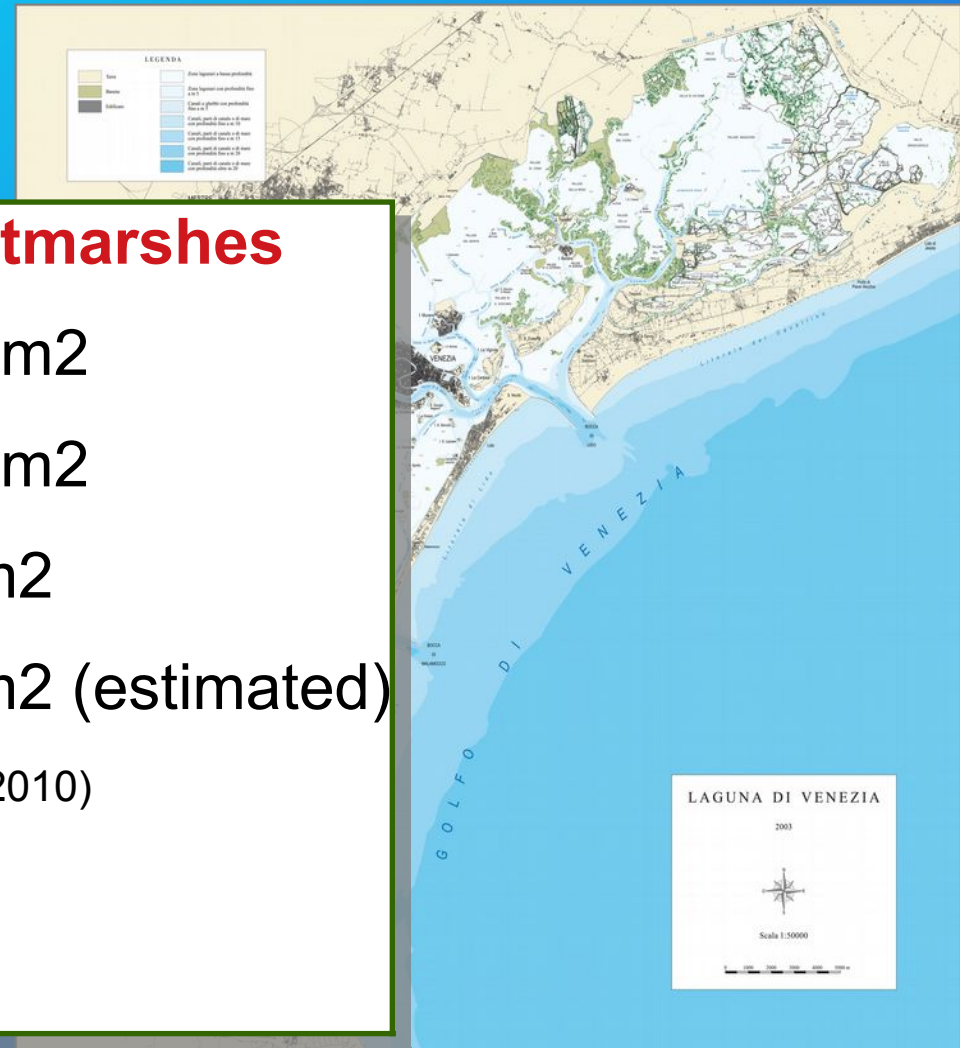
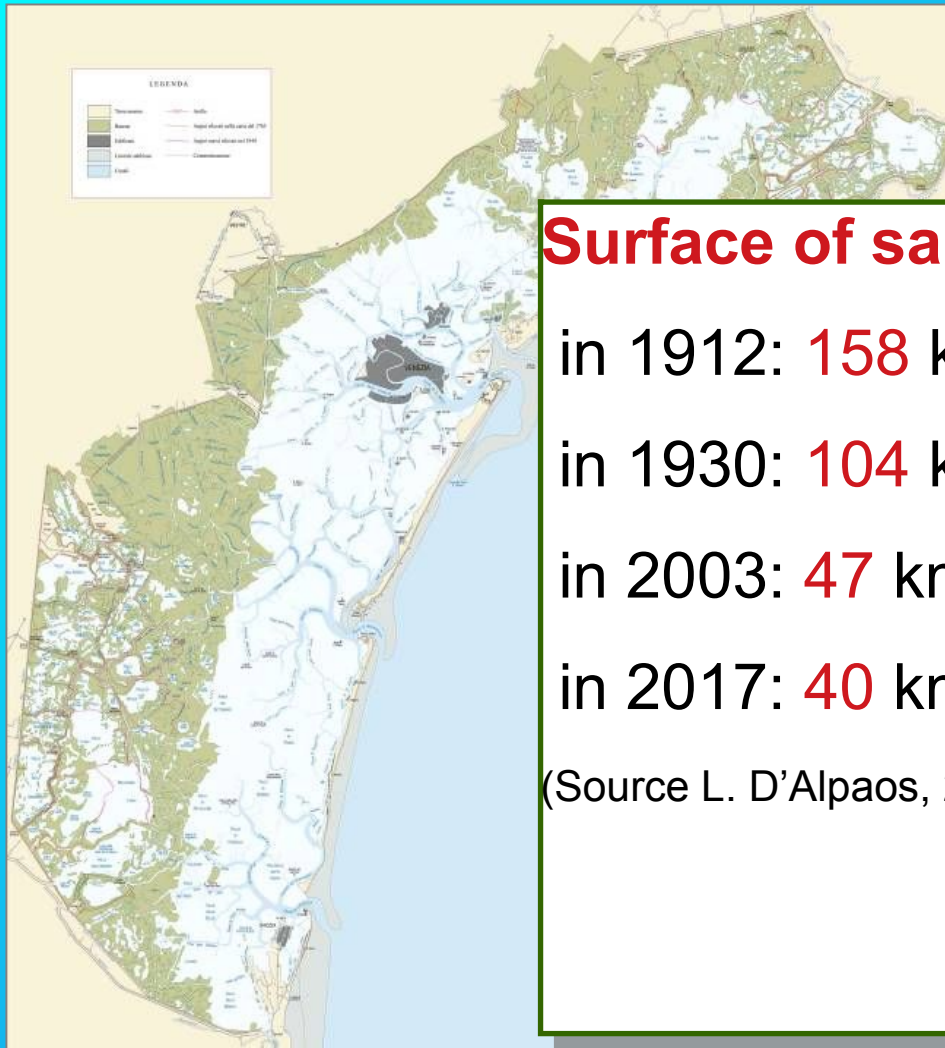


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[www.atlantedellalaguna.it](http://www.atlantedellalaguna.it)

1840

2003



## Surface of saltmarshes

in 1912: **158** km<sup>2</sup>

in 1930: **104** km<sup>2</sup>

in 2003: **47** km<sup>2</sup>

in 2017: **40** km<sup>2</sup> (estimated)

(Source L. D'Alpaos, 2010)

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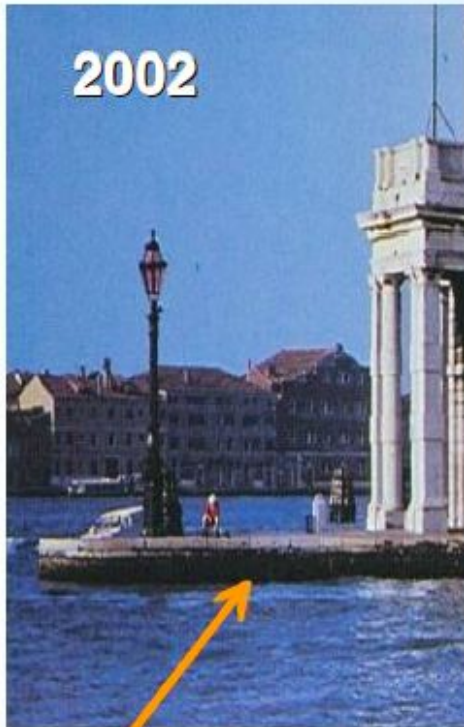
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# Saltmarsh erosion





# Canaletto, 1740: Punta Dogana



2002



1740

**Livello delle alghe**

Oggi il selciato è stato rialzato

**Spostamento osservato delle alghe:  $69 \pm 10$  cm**

(Source Camuffo, Sturaro 2003)

# THE LAGOON SEA LEVEL RISE:

(1897 - 2016)

(Ref: ISPRA, quad 10/2017)

SUBSIDENCE	Natural and anthropic sinking	+ 15 cm
EUSTACY	Sea Level Rising	+ 18 cm
Average sea level in lagoon referred to 1897		+ 33 cm

## SLR forecast for 2100

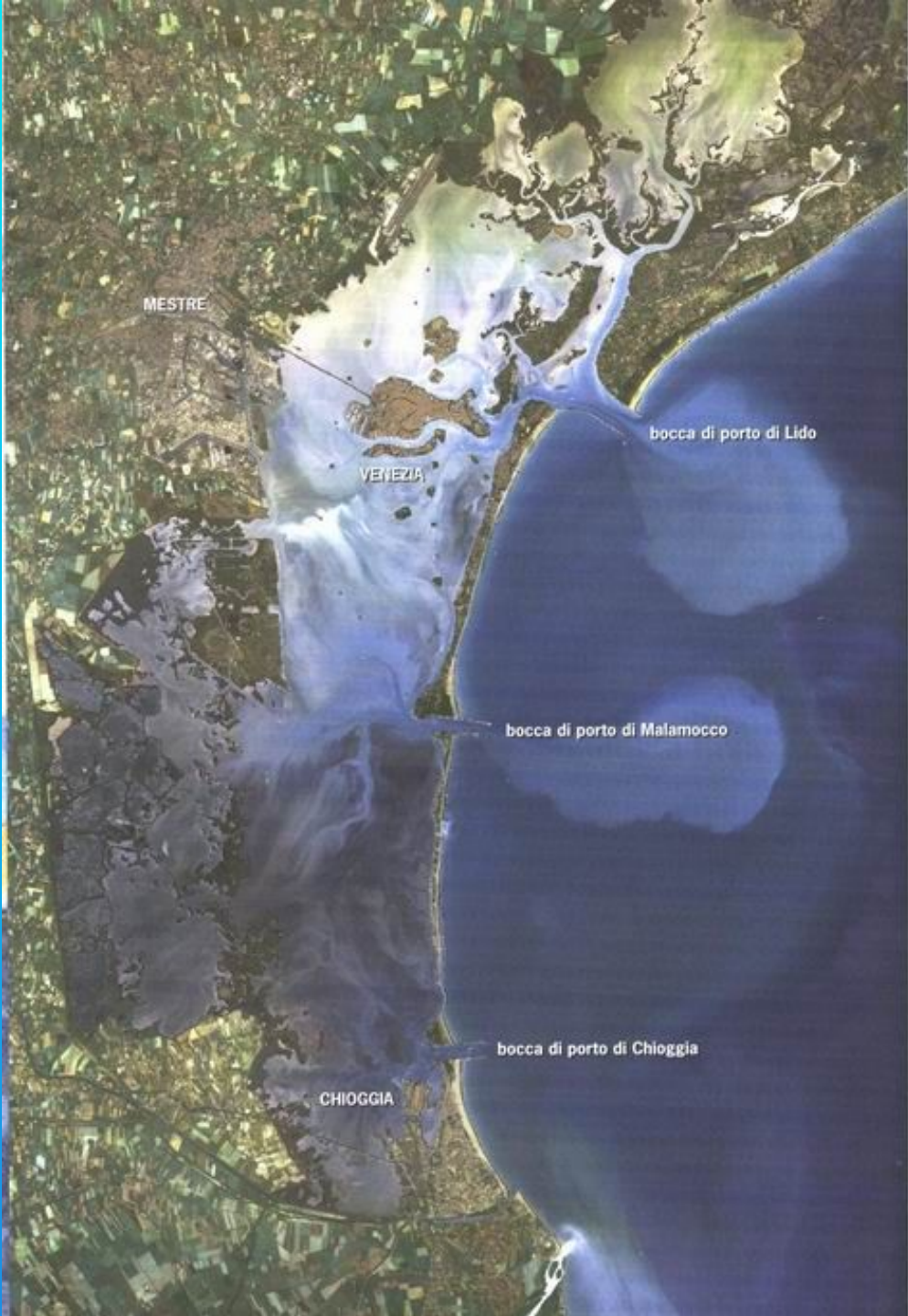
- IPCC 2013: 60-95 cm (Ocean)
- ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development): 90-141 cm (Northern Adriatic)

Sediment loss:  
**800 mc/year**

Lowering sedimentation due to:

- Rivers diversion and mouth jetties
- **sediment motion** (wind, tide current, storm surge...)
- erosion, traffic (ships and motorboats)
- shellfish fishing methods





# Conservative work on saltmarshes

VENICE INTEGRATED MANAGEMENT  
OF INTERTIDAL ENVIRONMENTS



# Wood bundle production



# Why protect saltmarshes?



- Adsorbing carbon dioxide
- Decrease eroding power of current and waves
- Slowing down the speed of the water (and reduce the level of high water that threatens the city)
- Protected habitat

# RESULTS

- 95 hectares of protected salt marshes
- 60 mc of litter removed
- 21 plant associations monitored
- 27.000 young students involved
- 100 teachers trained
- 1480 workdays for local residents



# **A big concern**

European funding ended in 2017...and so did the project. Only 2.5% of saltmarshes has been protected...

**Thanks for your attention!**