

Seagrass transplantation to restore Coastal lagoon (habitat 1150*) and meet WFD 2000/60/EC requirements: second year results of LIFE SeResto project in Venice lagoon (Italy)

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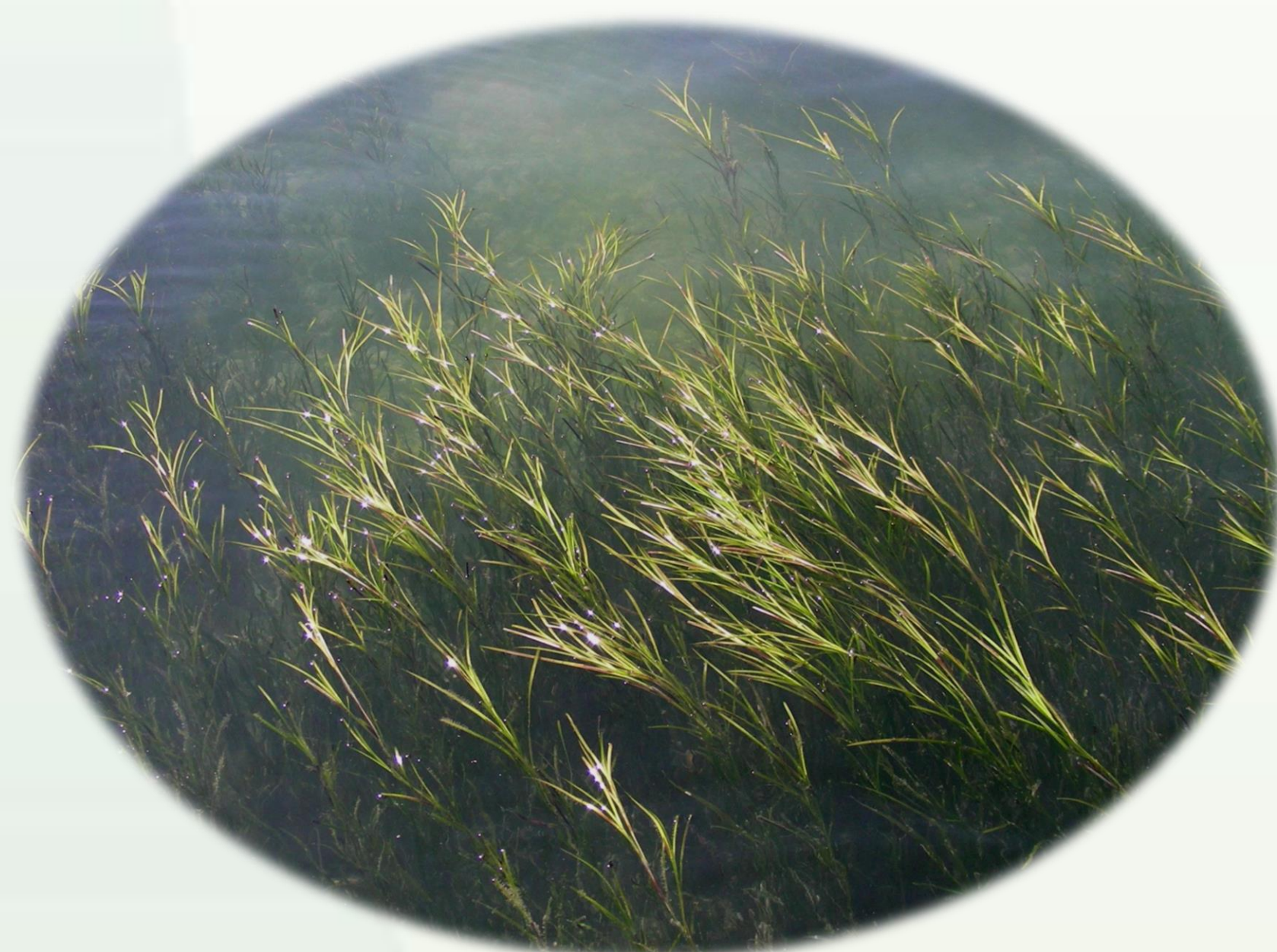
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Seagrasses are aquatic plants with leaves, rhizomes and roots



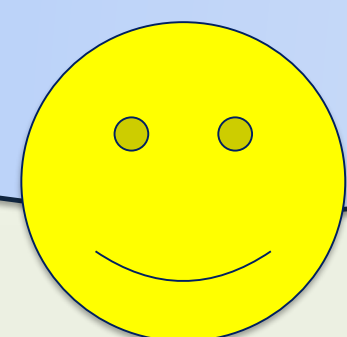
Seagrass meadows play a key role for coastal lagoon habitat conservation by:

- supporting biodiversity,
- stabilizing sediments,
- improving water quality,
- sequestering carbon dioxide

Anthropogenic pressures, mainly eutrophication and bottom disruption due to mechanical collection of clams, caused the seagrass disappearance.



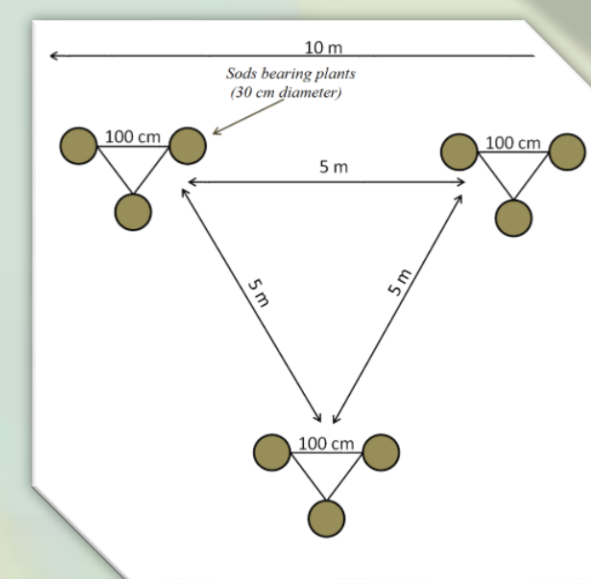
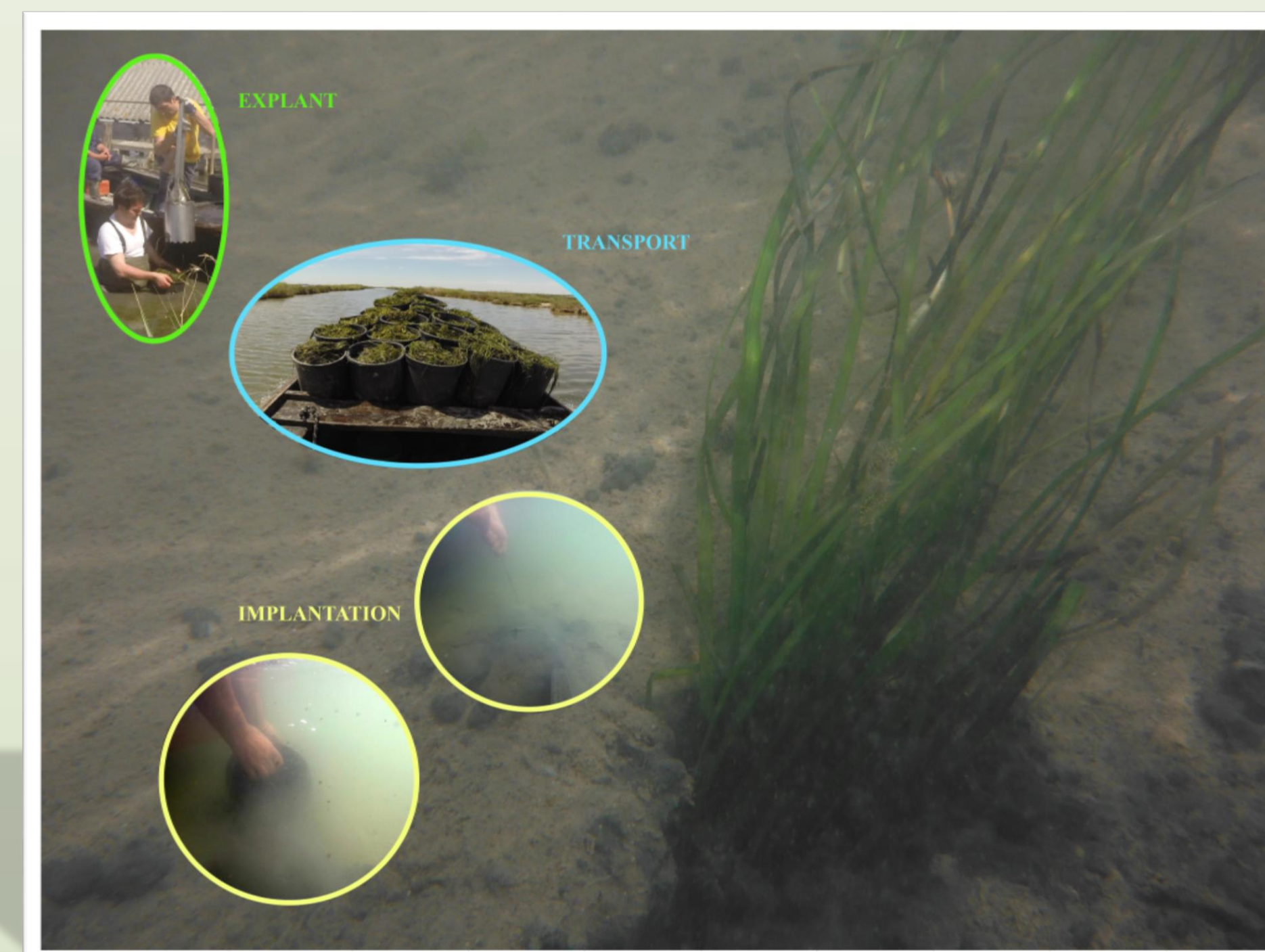
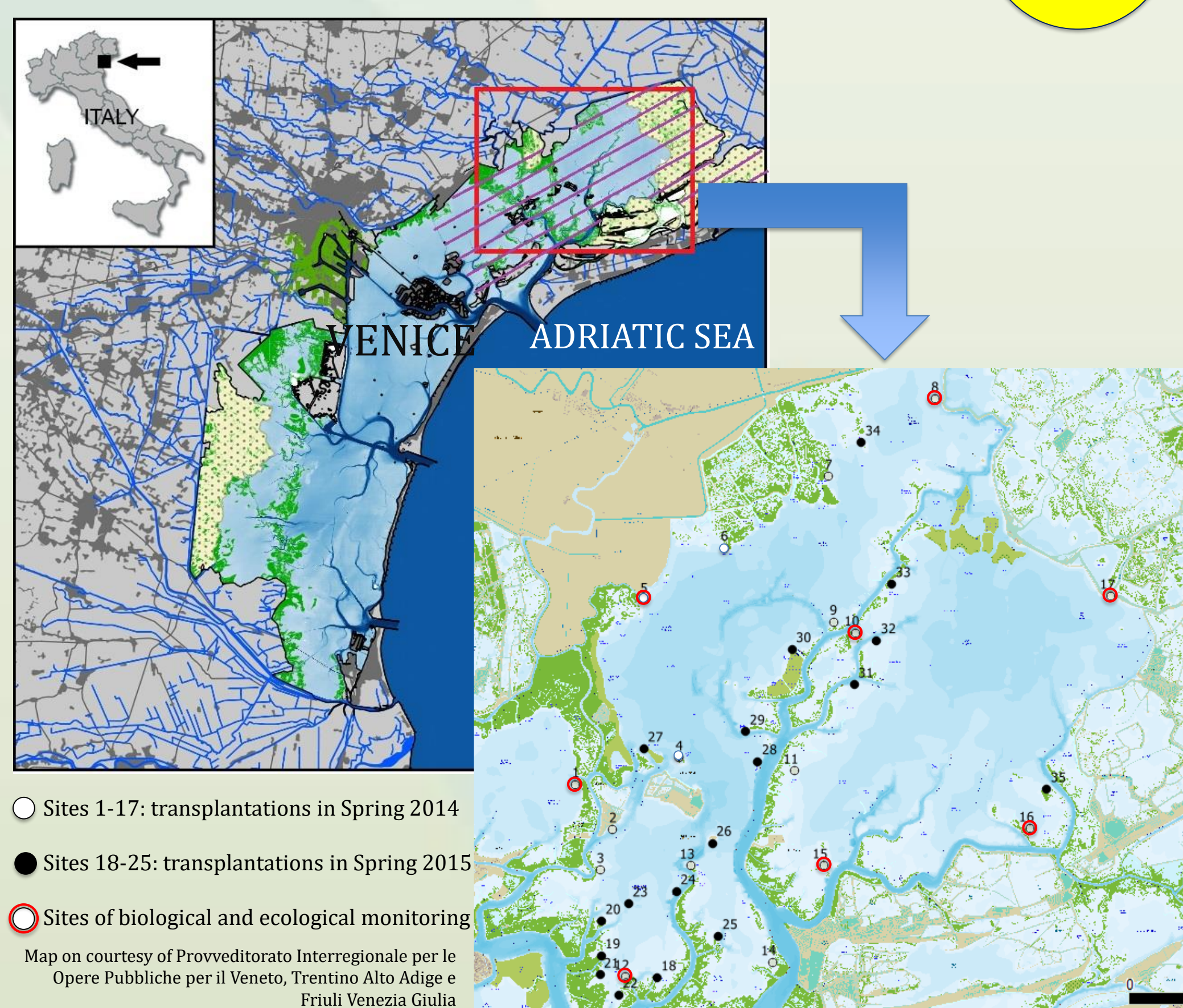
In the 2000s, after the enactment of laws aiming at reducing the anthropogenic pressures at the watershed scale, the water quality improved and environmental conditions suitable for seagrass growth were restored.



However, in choked coastal lagoon the seagrasses are not able to colonize naturally.

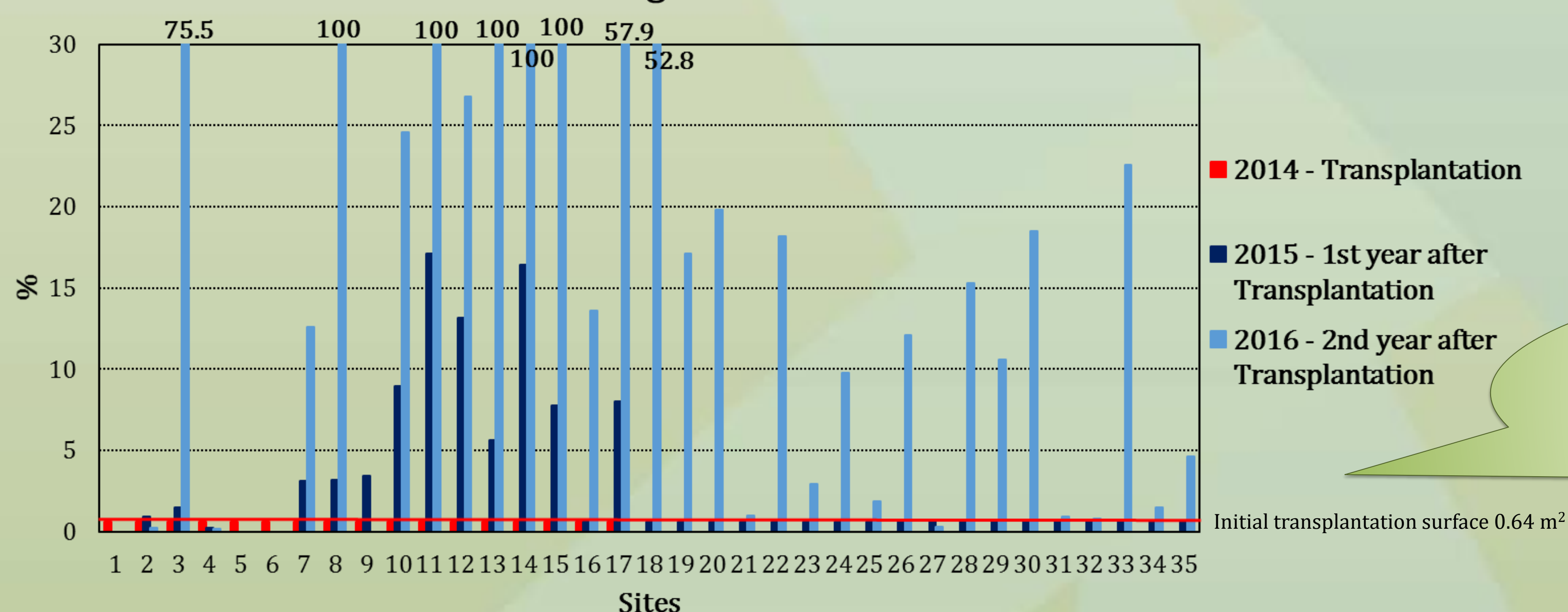
The LIFE SeResto project started in 2014 to trigger the natural re-colonisation of aquatic angiosperms by means of low-cost, small-scale manual transplantation mainly of *Zostera marina* and *Z. noltei*, at 35 shallow sites in Venice lagoon.

Each intervention site has a 100 m² surface, and plants were placed in triangles.



ECOLOGICAL STATUS: after one year, the initial conditions were compared by means of Biological Quality Elements (MaQI = macrophytes; M-AMBI = macrozoobenthos; HFBI = fish fauna) in 8 sites: plant coverage was still too limited to verify the response of biological communities, but some improvements were detected by MaQI.

Seagrass cover



| sites | | 1 | | | 5 | | | 8 | | | 10 | | | value |
|-------|------|------|-------|-------|------|-------|------|------|-------|------|------|-------|------|----------|
| year | 2014 | 0.25 | 0.72 | 0.14 | 0.25 | 0.63 | 0.1 | 0.75 | 0.53 | 0.21 | 0.55 | 0.53 | 0.51 | High |
| | 2015 | 0.25 | 0.91 | 0.92 | 0.25 | 0.96 | 0.59 | 0.85 | 0.51 | 0.44 | 0.75 | 0.68 | 0.42 | Good |
| | | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | Moderate |
| sites | | 12 | | | 15 | | | 16 | | | 17 | | | value |
| year | 2014 | 0.35 | 0.71 | 0.05 | 0.55 | 0.59 | 0.53 | 0.75 | 0.62 | 0.27 | 0.85 | 0.66 | 0.46 | High |
| | 2015 | 0.65 | 0.95 | -0.04 | 0.65 | 0.69 | 0.25 | 0.65 | 0.46 | 0.16 | 0.85 | 0.76 | 0.64 | Good |
| | | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | MaQI | MAMBI | HFBI | Moderate |
| | | | | | | | | | | | | | | Poor |
| | | | | | | | | | | | | | | Bad |

SEAGRASS COVER: after two years:

- in 5 sites the entire area was covered by seagrasses,
- 5 sites were unsuitable for seagrass rooting,
- 20 sites have cover beyond expected results.