Abiotic environment and plant community development in *Spartina maritima* restored salt marshes 9 years after restoration

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Restoration efforts are needed to recover salt marsh areas which have been degraded or destroyed. Cordgrasses plantations are an excellent way to accelerate the recovery of intertidal areas increasing accretion rates, facilitating ecological succession and increasing biodiversity and ecosystem services. The small cordgrass, *Spartina maritima*, is the only native cordgrass in many European estuaries.

It is known that planting *S. maritima* recreates typical plant zonation patterns in the short term. However, little is known about the maturation process both in plant community and in the abiotic environment in the medium-long term due to the lack of extensive restoration projects carried out following this successful method. In this sense, our study is carried out in the most extensive documented *S. maritima* plantation so far, located in Odiel Salt Marshes (Southwest Iberian Peninsula).

We hypothesized that *S. maritima* cover would decrease at the same time that topographic level increases due to its replacement by other halophytes colonizing higher elevation such as Sarcocornia perennis ssp. perennis. In addition, the accumulation of S. maritima below-ground biomass would be slower than its above-ground biomass. Therefore, abiotic factors such as oxygenation level of sediments would change respect to previous years modifying conditions that allow other plant species to colonize these marshes. Increasing the knowledge about environmental conditions development after Spartina plantation (ecosystem engineer species) offers key information for managing programs such as native species introductions or new habitat recreations to increase heterogeneity and biodiversity in new conservation efforts during the maturation of the restored ecosystem.