

Nature-based solutions for dune restoration to mitigate coastal erosion



carla.garcia@udg.edu



Parc Natural
dels Aiguamolls
de l'Empordà



Climate adaptation & mitigation in all European biogeographical regions



Continental

Berlin metropolitan region, DE



Coastal

Catalonia, ES



Mediterranean

Attica region, GR



Atlantic

Zeeland & Rijnmond, NL



Arctic

Troms & Finmark, NO



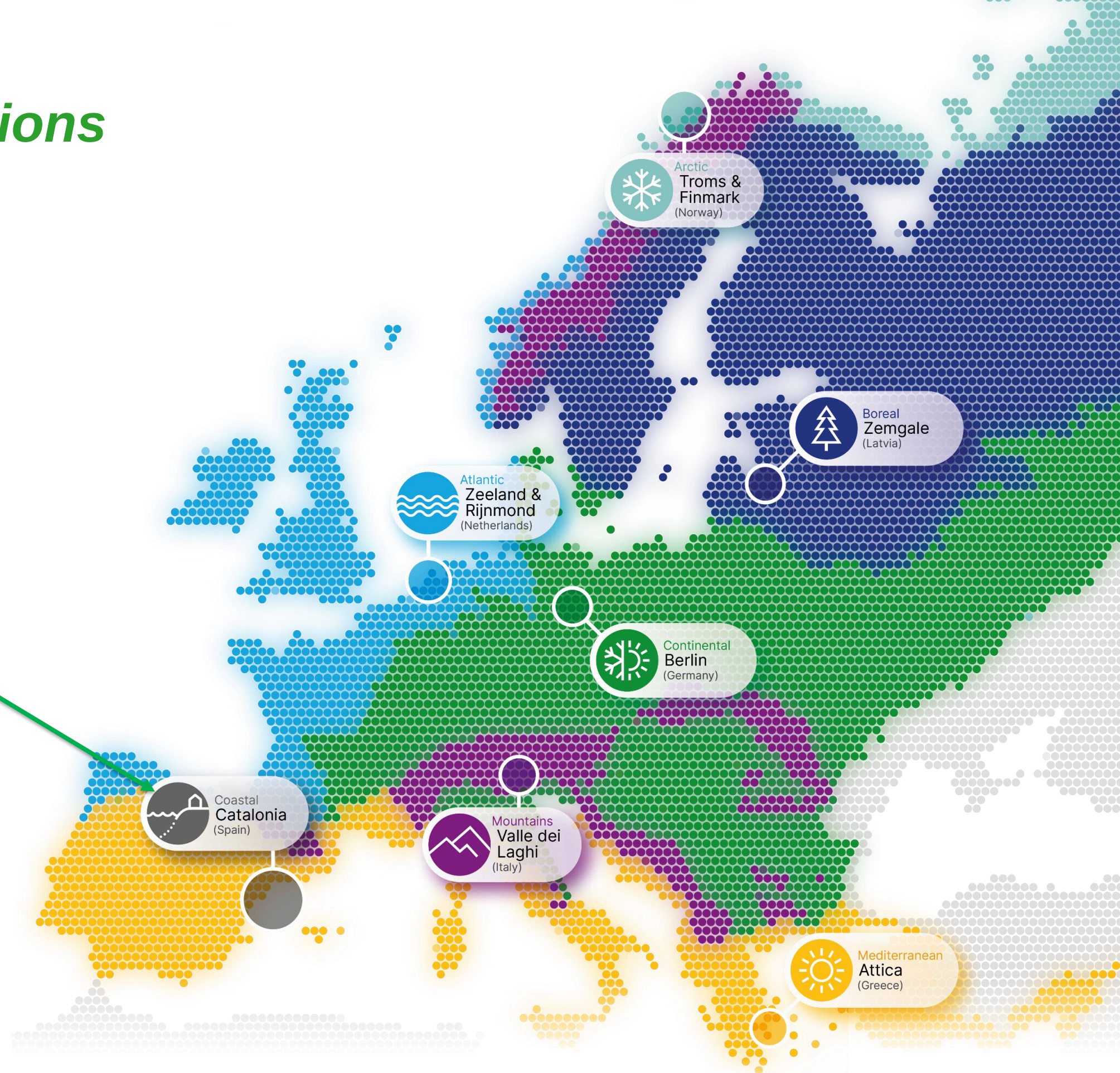
Boreal

Zemgale region, LV



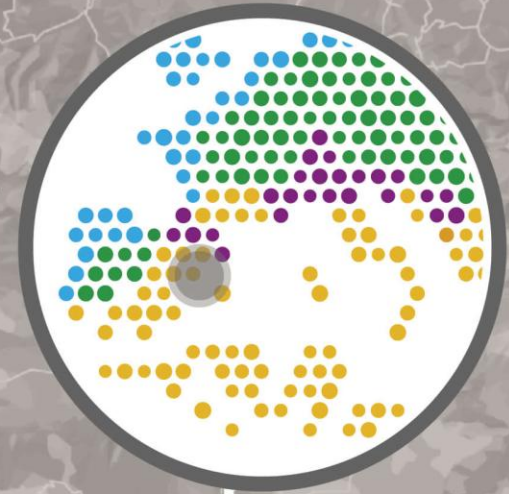
Mountainous

Valle dei Laghi, IT





Coastal
Catalonia, ES



Sant Pere Pescador

Semi-urban beach

Semi-natural beach

Biodiversity loss

Flooding risk

Extreme storms

Marine storms

Barcelona

Tarragona

Sea level rise

Calafell

Urban beach



Stakeholders involved

City Council

Implementing management measures
and maintenance measures



University of Girona

Monitoring management measures



Sand fences



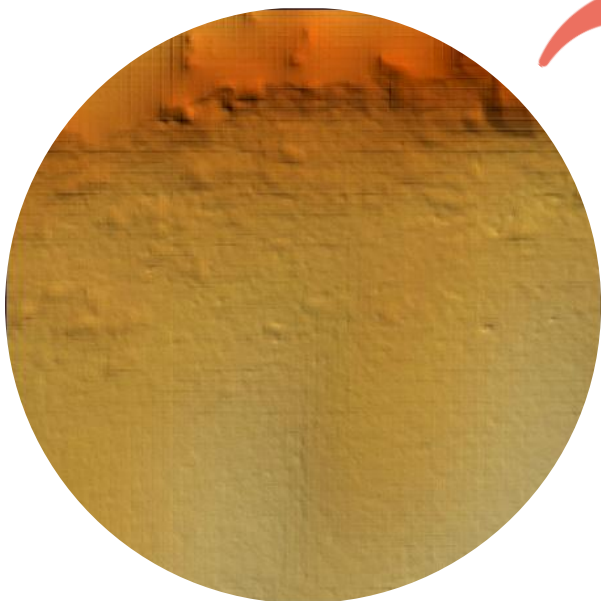
Rope fences



Nourishment



Deconstruction



DEM
2021



DEM
2024



Management measures

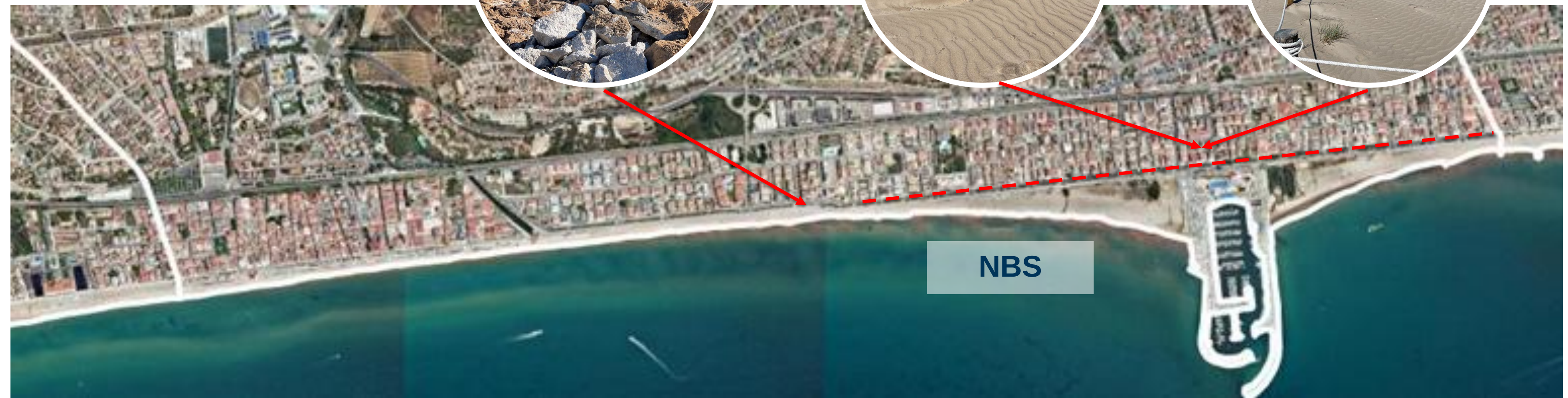
Deconstruction



Sand fences



Rope fences



Deconstruction



**Preventive
deconstruction**



January 2024

800 m²

Sand fences



2022



2023



2024



2025



2022



2024



2023



2023







$1.000 \text{ m}^3 - 500 \text{ m}^3 = 500 \text{ m}^3$





Universitat
de Girona


Ajuntament de Calafell



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IMPETUS

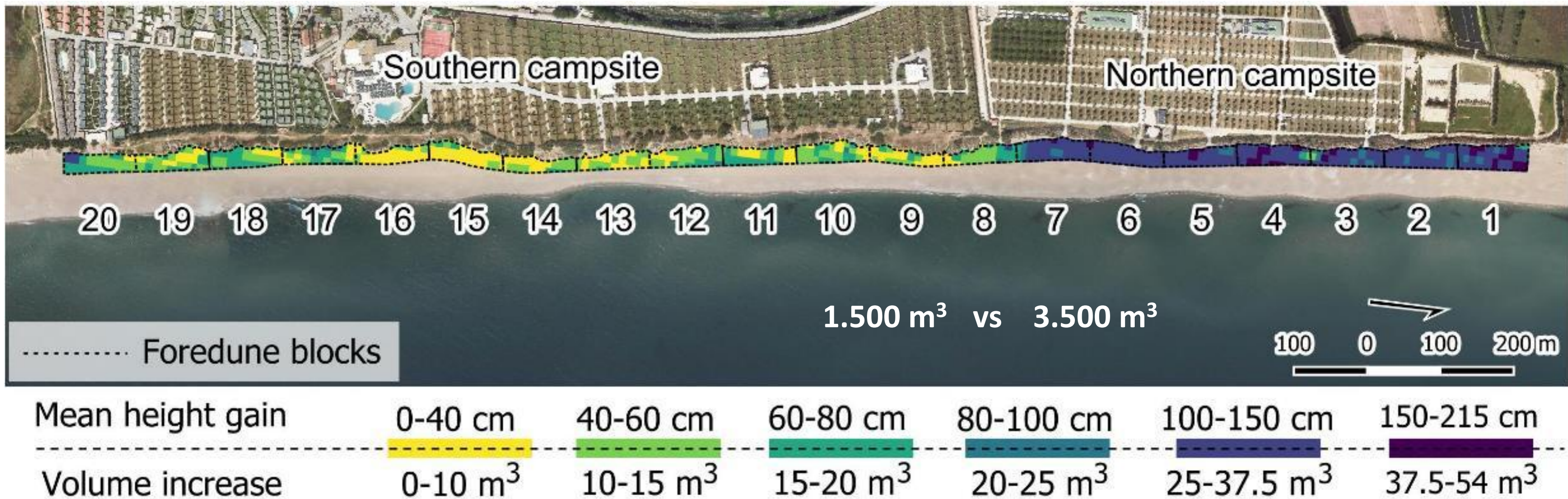


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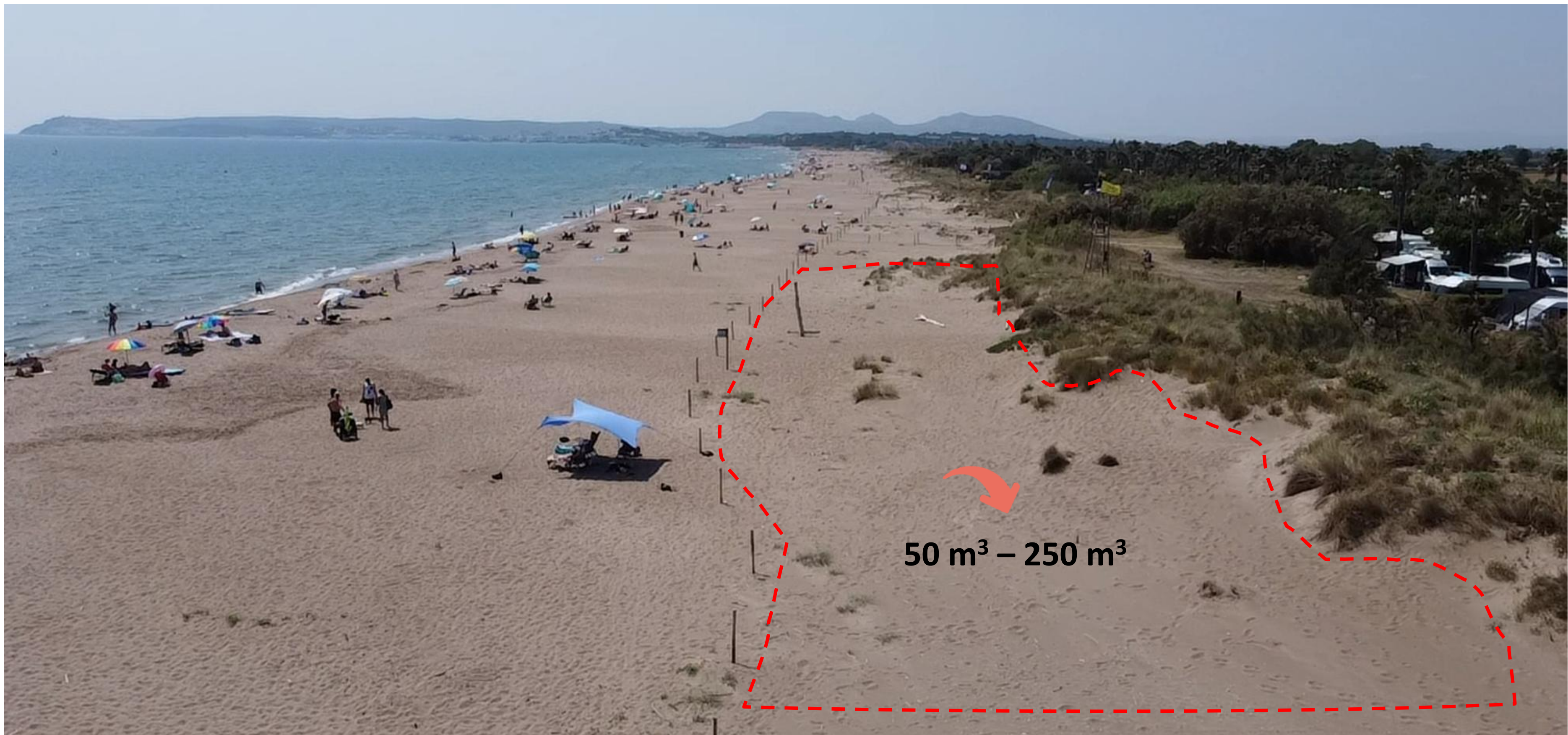


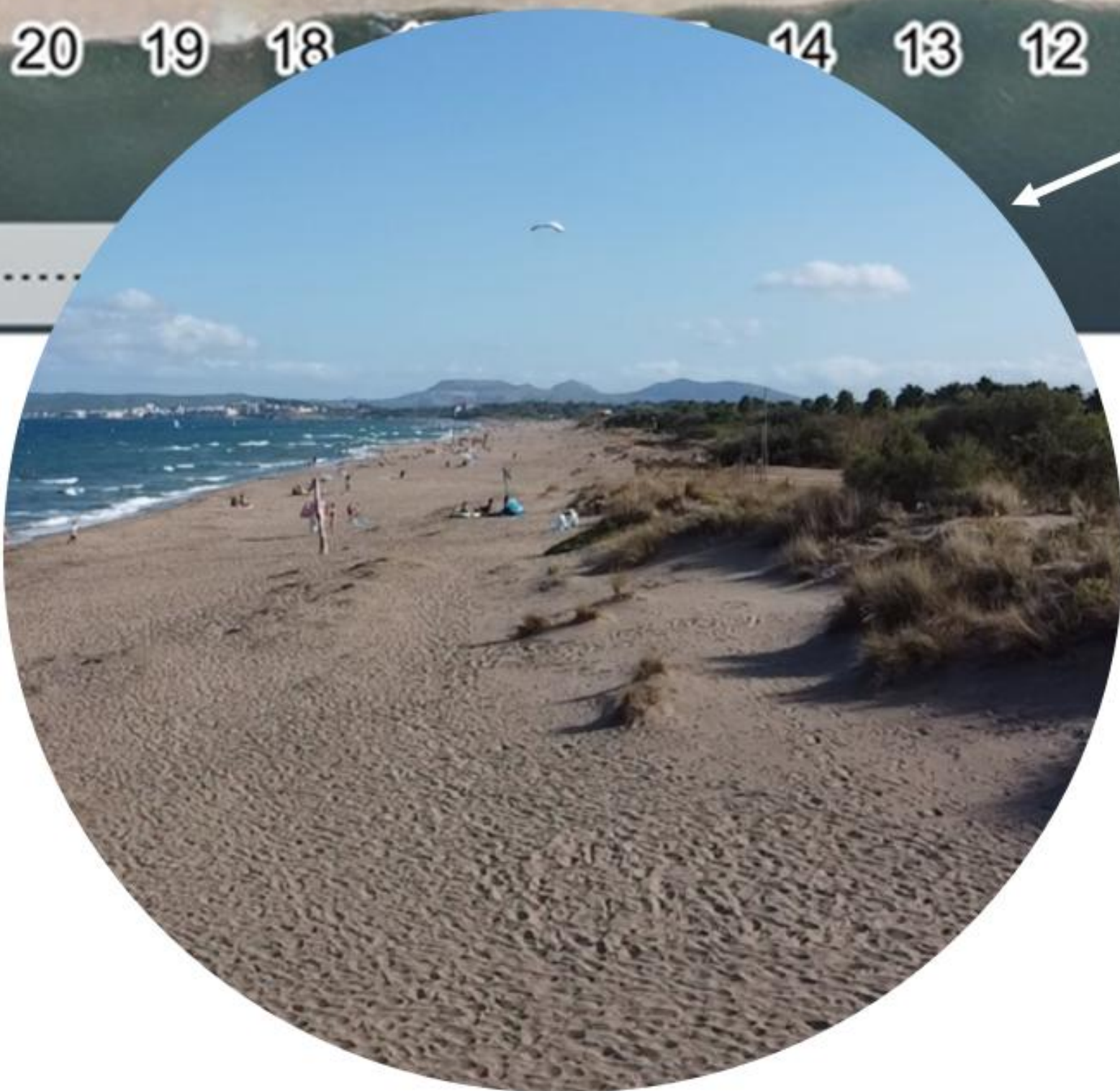
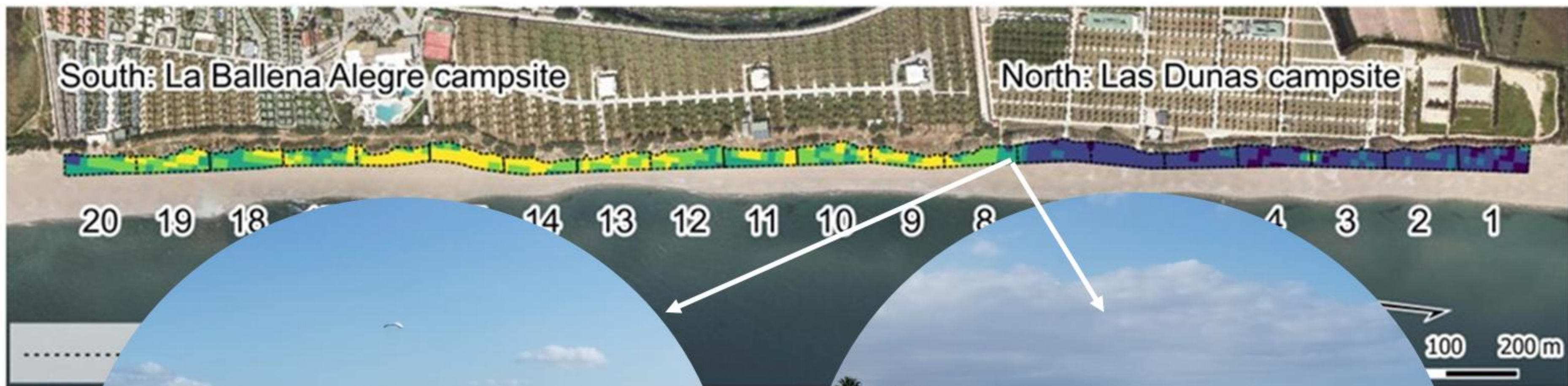
Garcia-Lozano et al., 2024 under revision



400 m³ – 500 m³

3







Gràcies!
Thank you!



carla.garcia@udg.edu