



Geomorphological properties of the island of Hvar beaches (Croatia, Eastern Adriatic Coast)

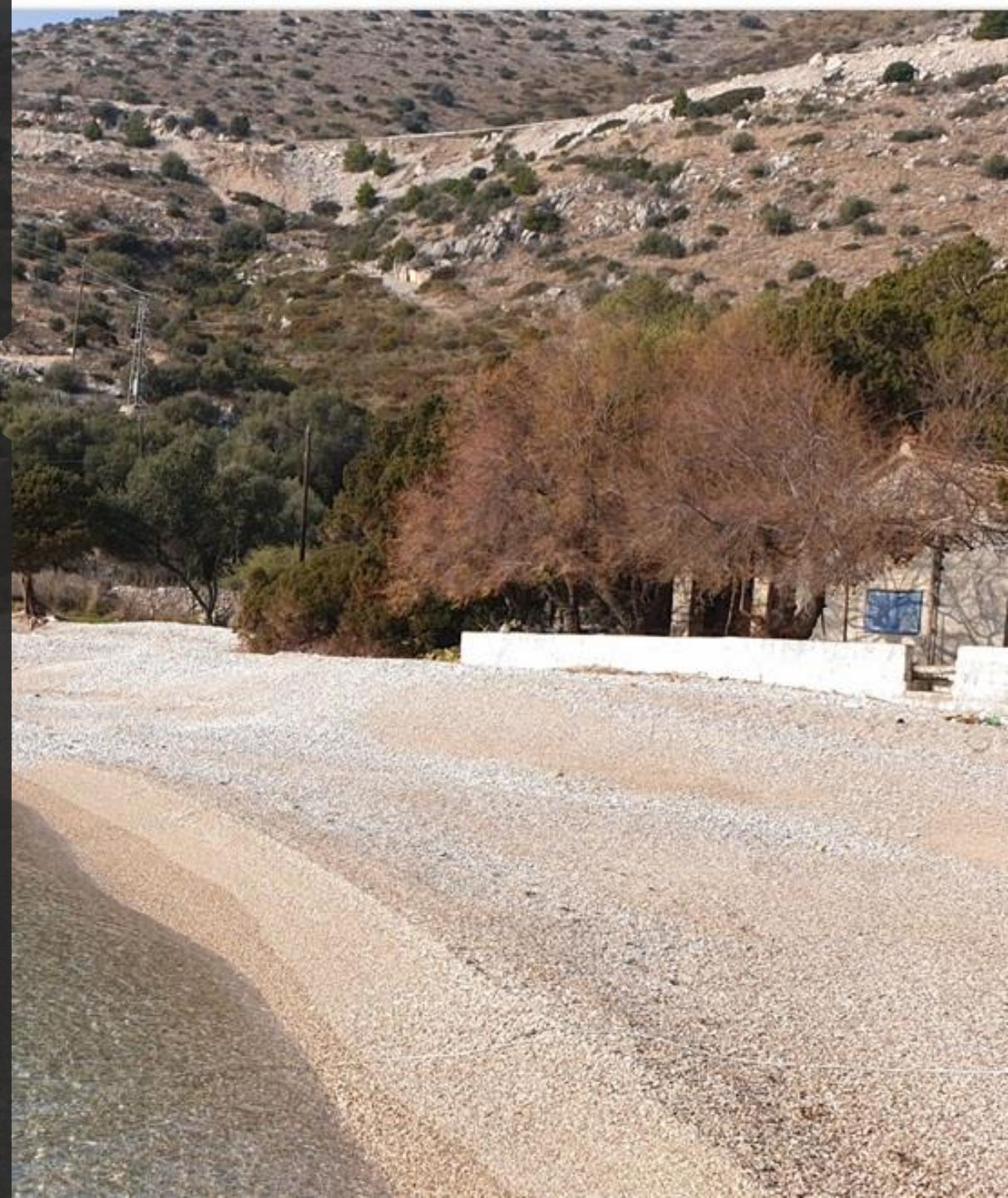
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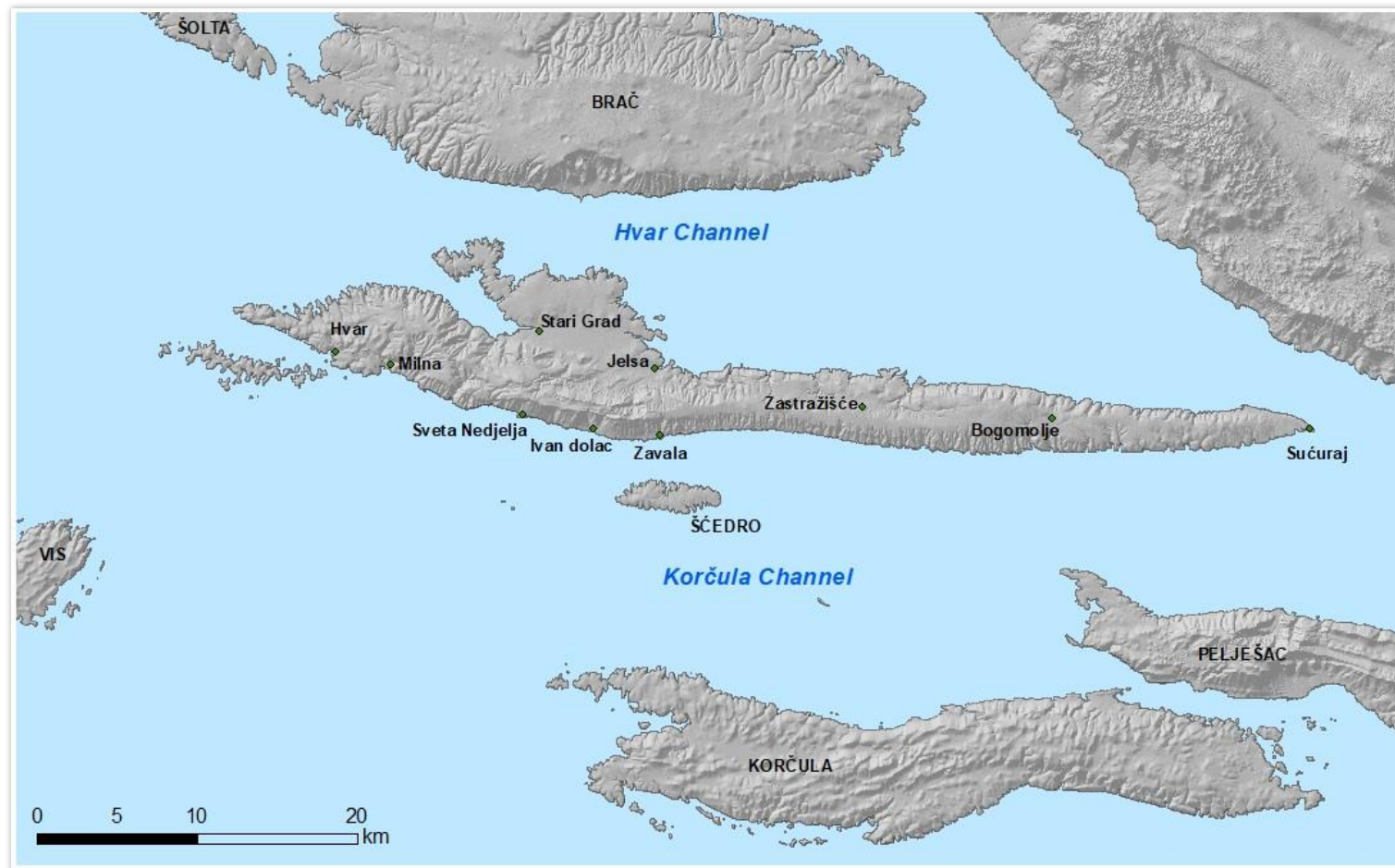
Introduction & aims

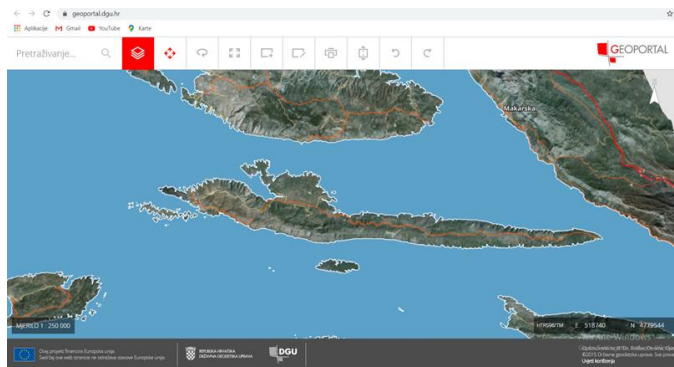
- Beaches → sedimentary forms, land-sea contact
- Dynamic coastal forms
- Change sensitive (natural & anthropogenic)
- Very important geomorphological feature → 40% world coasts are beaches
- **AIMS:** to analyse geomorphological properties of the island of Hvar beaches → total number, area, lengths, sediment size, morphological types, correlation with drainage basins, share in coastal length



Study area

- Island of Hvar
- Eastern Adriatic coast
- Area: 297,4 km²
- Coast length: 254,2 km





- **Ortho-photo analysis** (4 different points of time)
- State Geodetic Administration(2011, 2014, 2017), Here maps (2019)

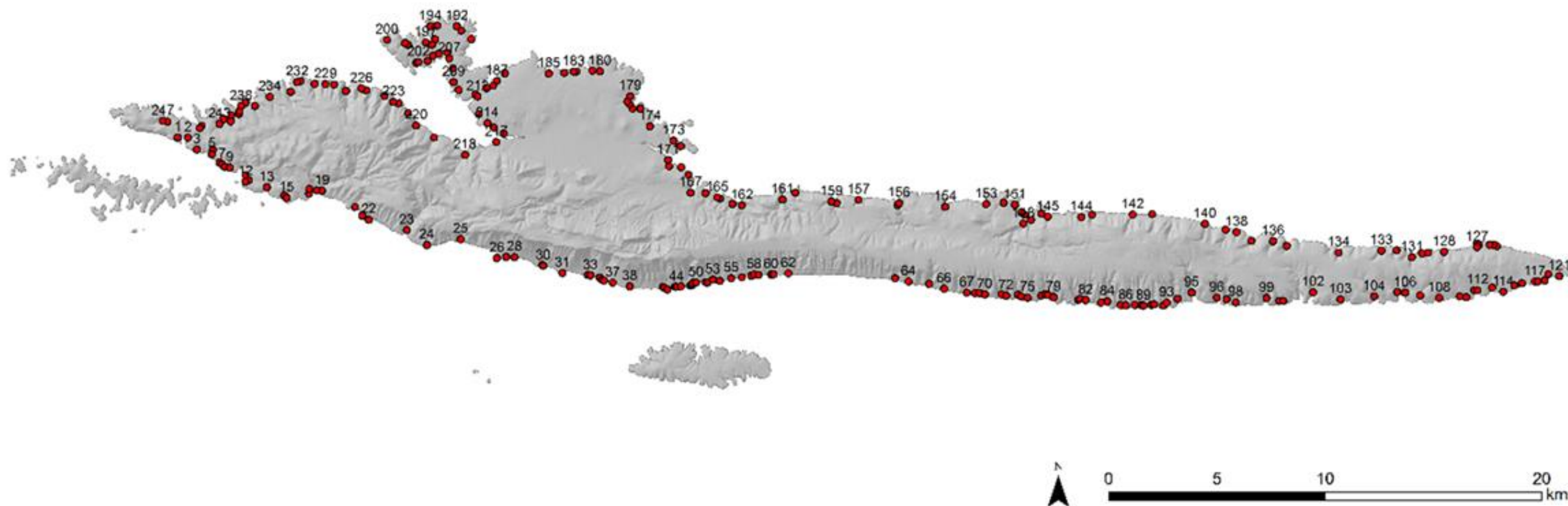


- **Field mapping**
- July 2018-July 2019



- **GIS Analysis**
- ArcGIS 10.4. software (GIS and statistical calculations)

Methods

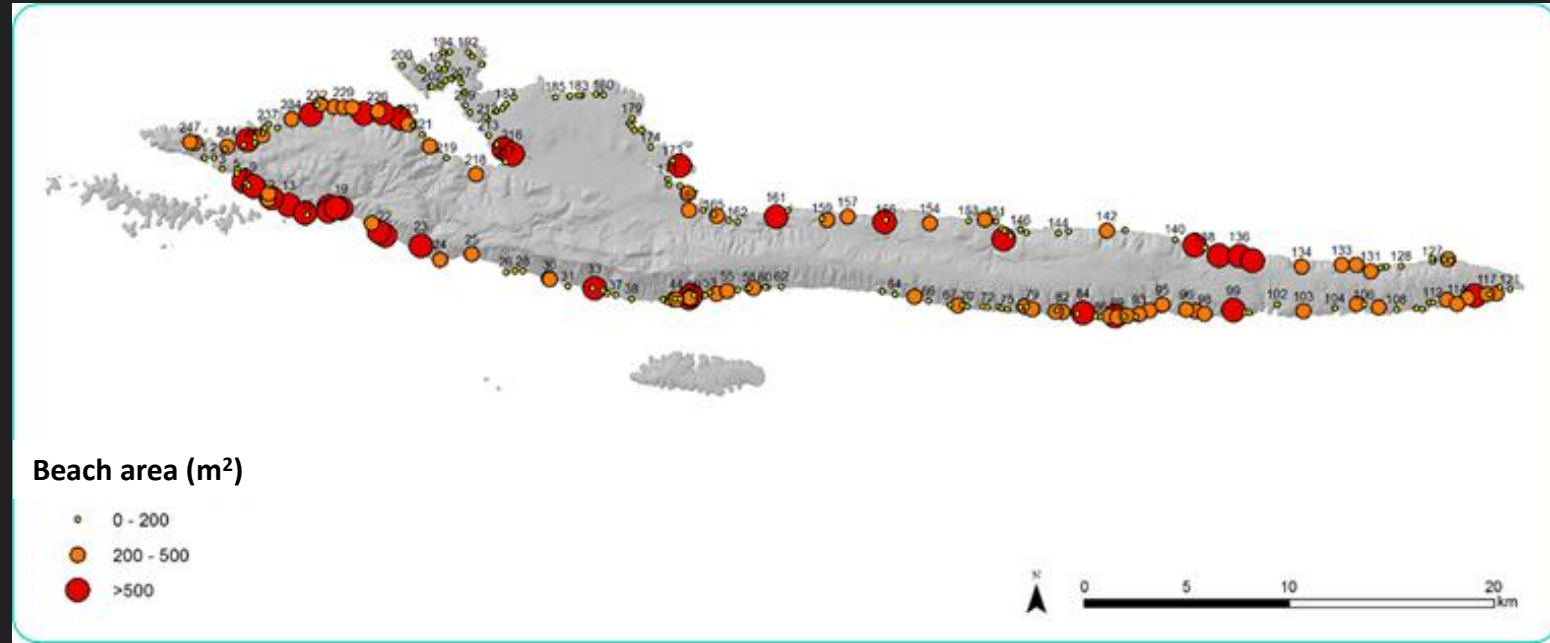


Results

- 247 beaches were analysed
- 3,8% of total coastal length
- Average beach length: 32,66 m

Beach area

- Mostly small „pocket” beaches
- Average beach area: **258,8 m²**
- Deviation: \pm **7%**.
- 3 categories: small, medium and big beaches



	Area (m²)	Number of beaches	(%)
Small beaches	0-200	148	59,919
Medium beaches	200-500	64	25,9109
Big beaches	>500	35	14,17

Beach morphological types

	Number of beaches	%
Beaches formed in fan material at the gully mouth	204	82,6
Beaches formed under the cliff	23	9,3
Beaches formed in Aeolian deposits	11	4,45
Anthropogenic beaches	6	2,4
Undefined beaches	3	1,25





Sediment size

Sediment size	Number of beaches	(%)
Pebble	236	95,5466
Sand	11	4,45344

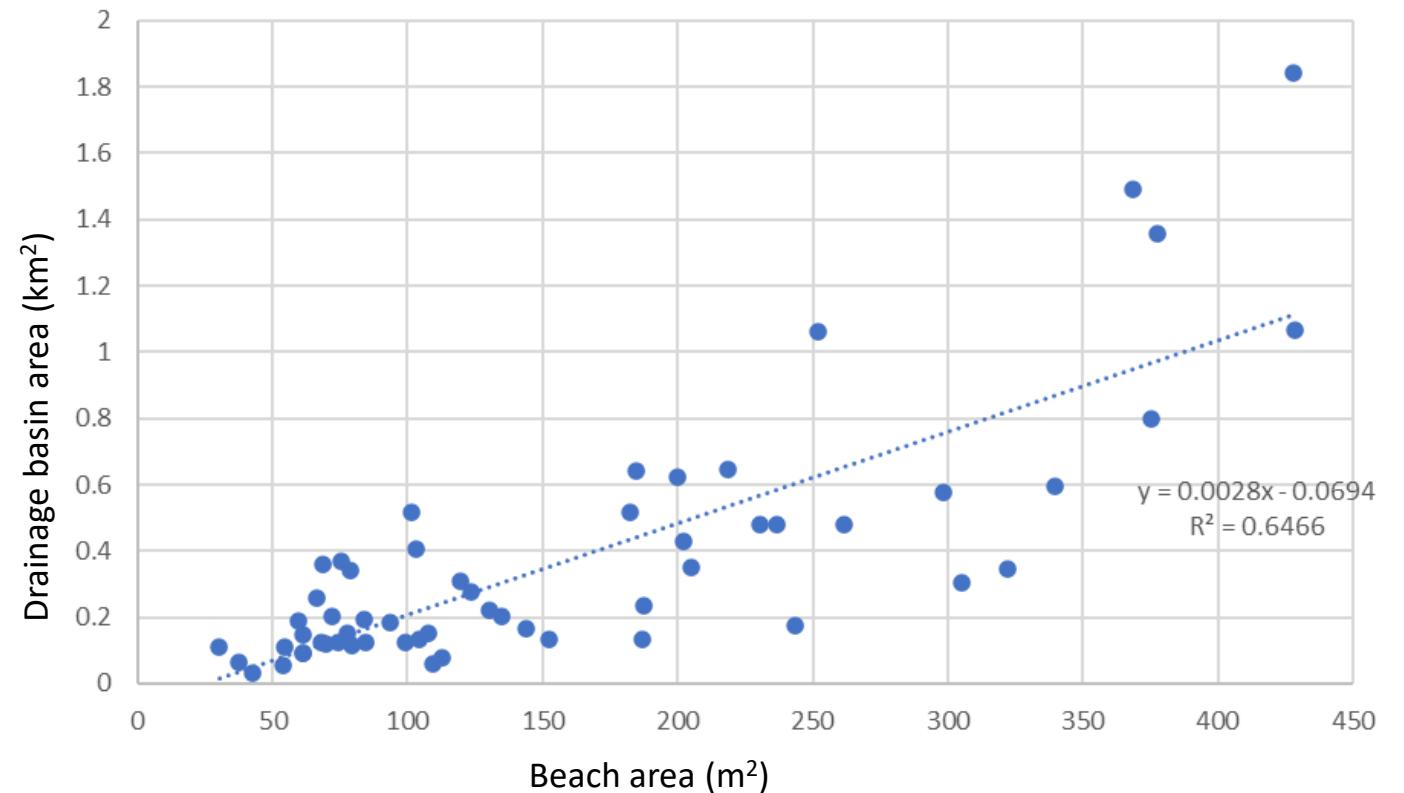
Anthropogenic impact

	Number of beaches	(%)
Beaches under anthropogenic impact	138	55,8704
Completely natural beaches	109	44,1296



Beach area vs. drainage basin area

- **Geomorphological system** (beach-drainage basin) → 204 (82,6%) beaches on the island of Hvar
- Correlation: beach surface and drainage area surface → 204 beaches → $r^2=0,37$ (no correlation)
- Correlation: beach surface and drainage area surface → only beaches without any anthropogenic impact → $r^2=0,64$ (**more significant correlation**)
- This probably points to the disturbing effects of the anthropogenic activity on beaches sediment budget of the island of Hvar.





Thank you!

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