

Comparing MDAT diversity metrics

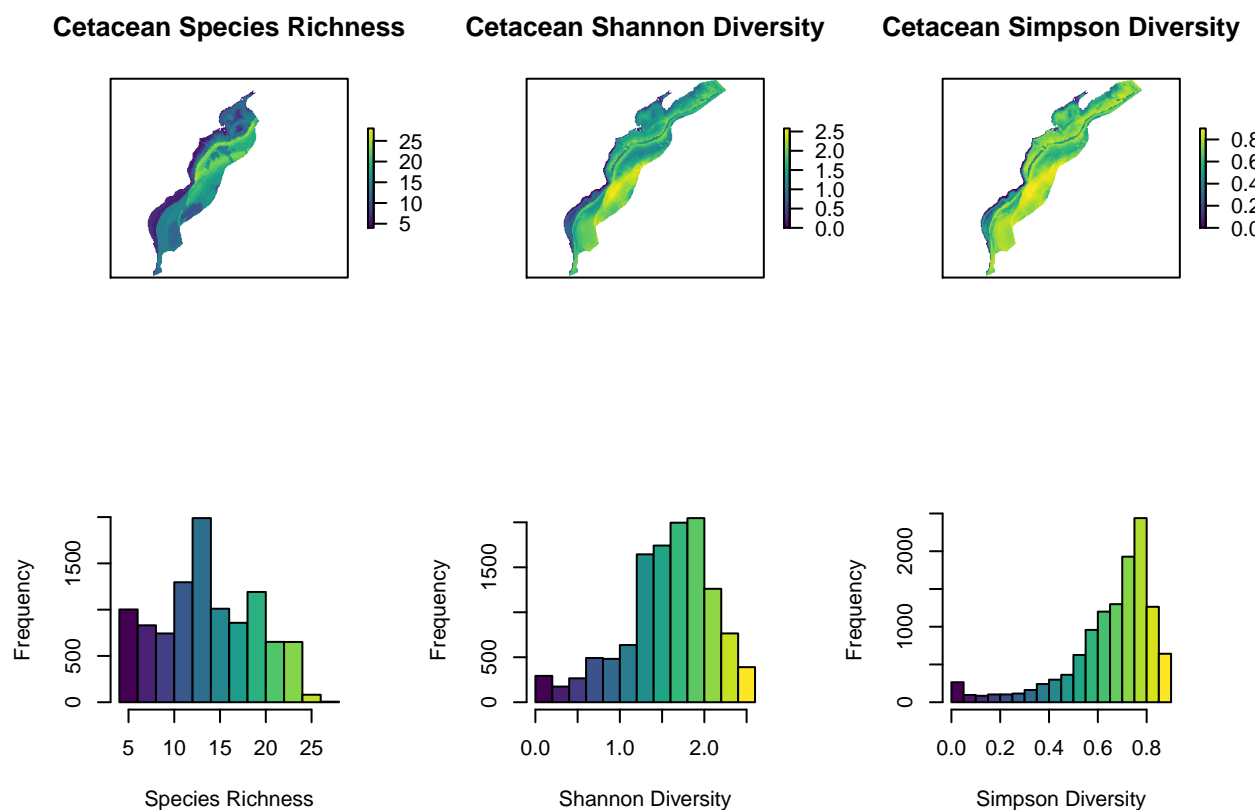
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Purpose

The purpose of this document is to explore the similarities and differences among the three diversity metrics calculated for MDAT products, and what those might mean ecologically.

We'll be looking at Species Richness, Shannon Diversity, and Simpson Diversity for all cetacean species:



Quick comparison

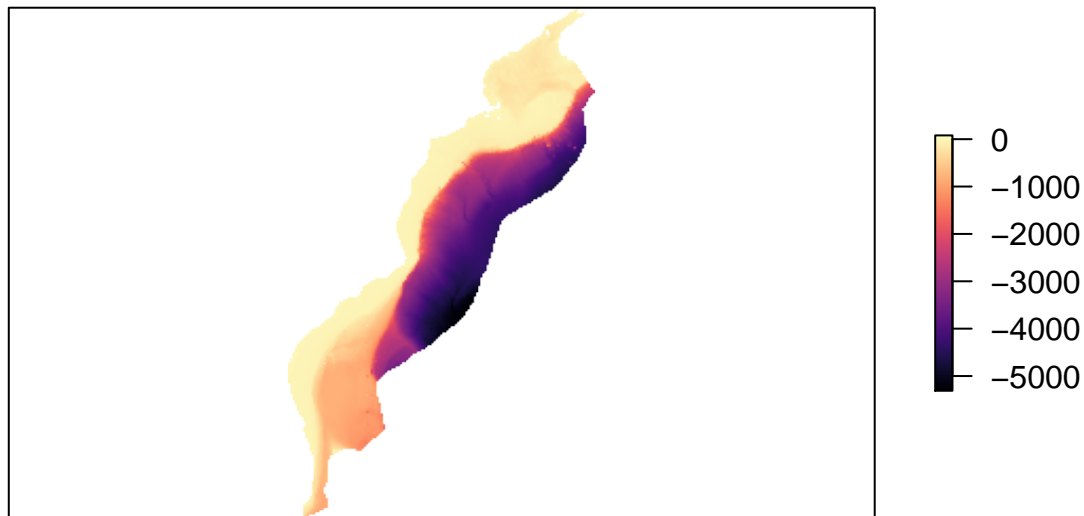
From the maps we can tell that Shannon and Simpson are more similar to each other than either of them are to Species Richness. We can check this by doing a simple correlation between each pair of metrics:

	richness	simpson	shannon
richness	1.00	0.49	0.56
simpson	0.49	1.00	0.96
shannon	0.56	0.96	1.00

Ecological relationships

Which diversity metric can best discriminate between different ocean habitats? Knowing which metric is best could help users choose which metric to use in spatial planning decisions. An important cetacean habitat variable is depth. A linear regression of each diversity metric on water depth can help determine which metric most strongly shows this association.

Water depth (m)



Linear regression with depth

r

p

richness

0.41

0.001

shannon

0.29

0.001

simpson

0.19

0.001