Different approaches exist to map near-shore shallow coastal waters. Combining them may provide a more synoptic picture than using only one approach. Here, we present opportunities and challenges of using Sentinel-2 multispectral satellite data to map shallow waters in the Baltic Sea (Heidkate, Germany).

Index-based Approach
- static water column
- hardly transferable
- easy to use

Determine parameters 1 (Fig. 1 and 2) to 3 to calculate the sea bottom reflectance from the atmospherically corrected Sentinel-2 data. Classify the sea bottom reflectance into the bottom types using a supervised approach (Fig. 3).

Physically-based Approach
+ dynamic water column
+ transferable
- complex to use

We can differentiate between seagrass covered, mixed and bare sand.

The index-based approach only works for the trained scene.

We can look down to appr. 4 m in the Baltic Sea using Sentinel-2.

"How does the choice of atmospheric correction influence water depth retrieval with physically-based models?"

Water depths vary between a few cm up to 3 m. Atmospheric correction is very important.

References: