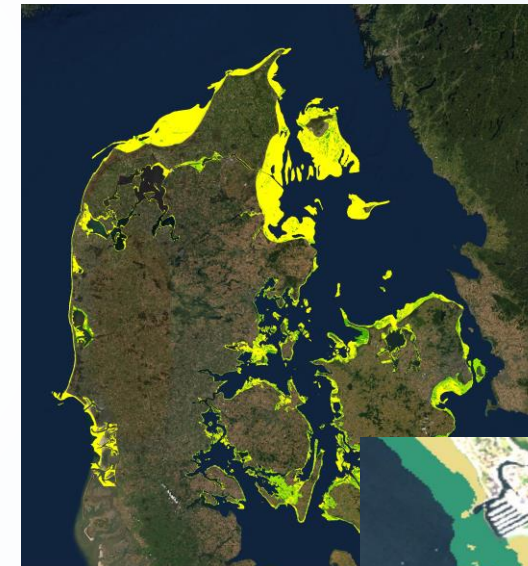# Submerged Aquatic Vegetation (SAV)

- User: Environmental authorities, NGO's
- Challenge/Needs: The health of aquatic vegetation is a key indicator of the ecological status and environmental state of ocean and estuarine waters. They provide critical functions which are difficult to replace, such as: habitats and spawning grounds for many different marine species; adding oxygen to the water and remove excess CO_2; improve water quality by absorbing excess nutrients; stabilise sediment and reduce erosion. Due to the nature of their important ecosystem functions, up-to-date knowledge about SAV abundance and growth dynamics is critical, to assess the impacts of management efforts and monitor overall marine health.
- Initiative: Commercial product as a result of several years R&D
- Results: By applying a combination of the latest optical satellite imagery, novel machine learning techniques and advanced data processing the extent, dynamics and density of SAV is accurately mapped in 10 m spatial resolution. The approach is highly scalable and has been applied to map national level submerged aquatic vegetation in both Denmark and Sweden. A cloud-based web application has been further developed as a flexible framework for on demand user mapping of SAV , at scale, in a non-specialist environment.
- Service Provider: DHI GRAS

Reference: https://www.dhi-gras.com/projects/sav_se/ /
https://www.dhi-gras.com/projects/eo4sdg/

Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Target 14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land- based activities, including marine debris and nutrient pollution.

Example: National mapping of submerged aquatic vegetation in Denmark
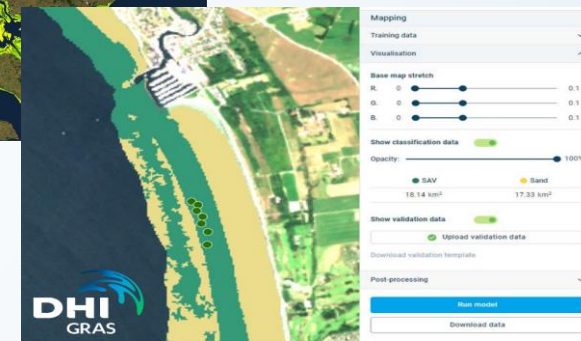
Example of the graphical user interface in the web application which facilitates user friendly classification to enable non-experts to do advanced machine learning based image classifications.

EARSC
European Association of Remote Sensing Companies