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ECU-MSS-2 dataset, a new multi-species seagrass dataset

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‘ECU-MSS-2’ dataset

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Dataset descriptions:

We developed a new multi-species seagrass dataset from underwater digital images and named ‘ECU-MSS-2’. The ‘ECU-MSS-2’ dataset contains four different habitats, ‘*Amphibolis*’ spp (hereafter ‘*Amphibolis*’), ‘*Halophila*’ sp (hereafter ‘*Halophila*’), ‘*Posidonia*’ spp (hereafter ‘*Posidonia*’) and ‘Background’. We compiled this image dataset from different sources. The ‘*Halophila*’ images were collected by the Centre for Marine Ecosystems Research (CMER), Edith Cowan University, Western Australia¹. These images were collected from different locations in Western Australia: Fremantle, Mandurah, Rottnest Island, Dampier reserve, Pelican Point, Rocky Bay Swan River, Milyu and Lucky Bay. The images were captured by a Fujifilm X-T30 mirror-less digital camera with wXF 18-55mm F 2.8-4 R LM OIS, all under natural light.

The ‘*Amphibolis*’ ‘Background’, and ‘*Posidonia*’ images were collected by the Department of Biodiversity, Conservation and Attractions (DBCA), Australia² from Shark Bay Marine Park, Shoalwater Island Marine Park, Jurien Bay Marine Park, Ngari Capes Marine Park, Cockburn Sound and the Marmion Marine Park, all in Western Australia. The images were captured by a downward-facing camera held 1- metre above the seagrass canopy with a field of view of 75 × 60 cm along transects used for measuring seagrass density/height. Ten downward-facing images were collected from each of the three transects per site (30 images per site in total).

The ‘*Amphibolis*’ class includes the seagrass species *Amphibolis griffithii* and *Amphibolis antarctica*. The ‘*Halophila*’ class includes *Halophila ovalis*, while the ‘*Posidonia*’ class includes *Posidonia sinuosa*, *Posidonia coriacea*, and *Posidonia australis*. The ‘Background’ class includes coral, sand, sponge, seaweeds, fish and other benthic debris.

The dataset comprises a total of 5,201 images, distributed across four classes: 1,304 images of ‘*Amphibolis*’, 1,237 images of ‘Background’, 1,315 images of ‘*Halophila*’, and 1,345 images of ‘*Posidonia*’. It is divided into training and test sets. The training set includes 4,161 images, with 1,044 ‘*Amphibolis*’, 977 ‘Background’, 1,055 ‘*Halophila*’, and 1,085 ‘*Posidonia*’ images. The test set consists of 1,040 images, evenly distributed among the four classes, with 260 images each.

¹ <https://www.ecu.edu.au/schools/science/research-activity/centre-for-marineecosystemsresearch/overview>

² <https://www.dbca.wa.gov.au/>