

Reclassifying marine, coastal and terrestrial protected area records in the WDPa

Records in the WDPa have been reclassified as marine, coastal, and terrestrial, in order to significantly enhance the accuracy of the database and its utility for users.

Background

Previously, if a protected area had been designated (in part or entirely) for marine features, '1' was listed in the 'marine' attribute field to flag full or partial marine protected areas (MPAs), while all other records were considered terrestrial and were attributed with '0'. This meant there was no way to identify protected areas that were designed to protect both marine and terrestrial features, as is common with protected areas along the coastline. Inaccuracies also occurred where marine attributes were mistakenly not applied to a true marine protected area record, which received the 'terrestrial' classification by default. It was then extremely difficult to identify MPAs with a high degree of certainty, particularly in coastal areas.

Reclassification approach and definitions

In order for a protected area to be catalogued within the WDPa, it must meet the accepted IUCN definition of a protected area:

"A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values."

This definition encompasses all protected areas, whether they protect terrestrial and/or marine habitats.

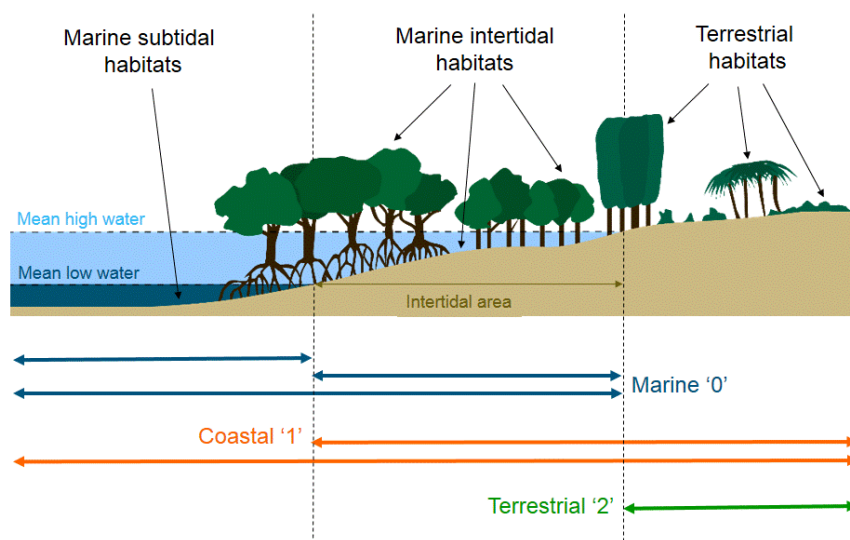


Figure 1. Cross section of a coastline, showing marine subtidal, marine intertidal and terrestrial areas.

For the WDPa reclassification, each protected area record has been identified with one of three possible numbers that signify its protection attributes:

'0' – any site recognized, dedicated and managed for only **terrestrial features**.

'1' – any site recognized, dedicated and managed for **marine and terrestrial features**.

'2' – any site recognized, dedicated and managed for only **marine features**.

The rationale for reclassifying on the basis of the presence of subtidal and intertidal habitats is derived from the now superseded IUCN definition of a 'marine protected area'².

This means that any protected area that includes mangroves, mudflats, saltmarsh, rocky shores or beaches (see Figure 1) will be considered as protecting marine features. Freshwater areas are not considered to be marine.

Many protected areas are easily identifiable as completely marine or

¹ For further information on Marine Protected Areas see the Biodiversity A-Z : www.biodiversity-a-z.org/content/marine-protected-area-mpa

² "Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has

been reserved by law or other effective means to protect part or all of the enclosed environment" ¹ Kelleher, G. (1999). Guidelines for Marine Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. xxiv +107pp.

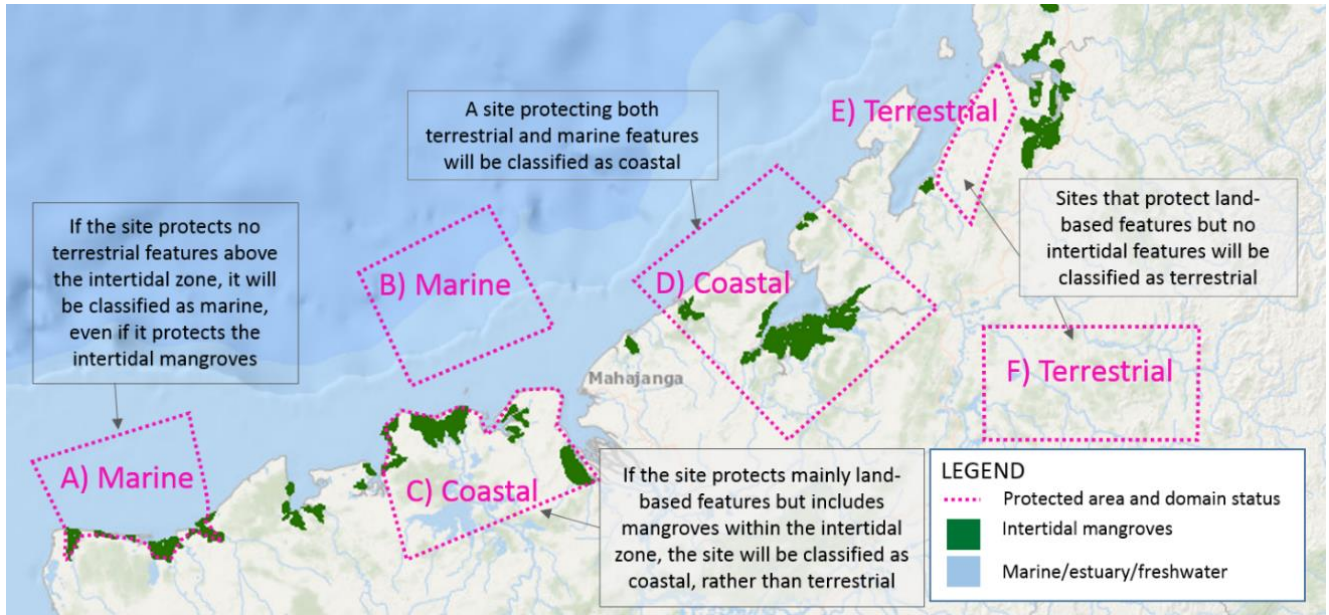


Figure 2. Fictitious map of protected areas demonstrating the revised classification. N.B. Mangrove habitats are one example of intertidal habitats that have been used in this figure to demonstrate the reclassification process. Other protected intertidal habitats, such as saltmarsh or mudflats, would also affect WDPA reclassification.

completely terrestrial, as shown by sites **B** and **F** in **Figure 2**. The reclassification has carefully checked to ensure that these protected areas are correctly labelled in the WDPA. Other protected areas have large sections occurring in both marine and terrestrial environments, protecting features from each, as shown by site **D**. These sites would previously have been labelled as either terrestrial or marine, and have now been reclassified as ‘coastal.’

Since intertidal habitats are classified as marine features, protected areas that appear very close to the coastline on a

map could be marine, coastal, or terrestrial, as shown by sites **A**, **C**, and **E**.

Mapped coastlines vary greatly in terms of their precision and accuracy, so if the coastline used in the WDPA differs from that used by country data providers, mapped protected area boundaries may shift slightly in relation to the coastline.

Review and Verification

Protected areas adjacent to or overlapping the coastline have now been carefully classified as marine, coastal, or terrestrial using their specific

designations (e.g., HELCOM sites must have a marine component), and the proportions of total area falling within either the marine or terrestrial realm.

These records are likely to require additional verification from data providers to confirm that the reclassification reflects the features they protect. UNEP-WCMC will contact data providers to verify the reclassification.

Newly reclassified protected area records will be publicly available in all new releases of the WDPA.

Detailed protocol

The geospatial analysis was conducted using the ‘Global, Self-consistent, Hierarchical, High-resolution Shoreline Database’ [GSHHS] developed by Wessel and Smith (1996)¹. Guided by this coastline, protected areas falling entirely within the marine environment or entirely within the terrestrial environment were classified as ‘2’ and ‘0,’ respectively.

The remaining features¹ were separated by country and iteratively clipped using the GSHHS coastline, thereby giving the ratio of land to marine features. Marine and coastal designations (i.e. those known to be specifically for marine features, or have a marine element in the designation title), combined with the extent of spatial coverage (i.e. per cent of site falling within the marine environment versus the terrestrial environment), were then used to further refine the classification. These combined filters were necessary to ensure that mislabelled features were identified and correctly reclassified.

Subsequent filters included selecting areas with greater than or equal to 98% coverage of terrestrial or marine, which were identified as ‘terrestrial’ and ‘marine,’ respectively, and selecting areas with 10% and 90% coverage of marine features, which were classified as ‘coastal.’ The remaining features were labelled as ‘coastal’ given the uncertainty surrounding the degree to which marine and/or terrestrial features were protected.

¹ Wessel, P., and W. H. F. Smith, A Global Self-consistent, Hierarchical, High-resolution Shoreline Database, J. Geophys. Res., 101, 8741-8743, 1996 [PDF].

² Features classified in each step were no longer included in subsequent steps.

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Authors: Thomas H.L., Weatherdon L.V., MacSharry B., Jones M. I.

Available online at: www.proteuspartners.org/

Contact: businessandbiodiversity@unep-wcmc.org

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