

The comparative analysis for the Getbol

Advice on methodology

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waddenacademie

The Wadden Academy

- The Wadden Academy is an independent foundation with the ambition to develop the Wadden Sea Region into an incubator for widely applicable integrated knowledge of sustainable development of a coastal area in which natural values are a key element and form the foundations of the local and regional economy.
- By 2020, the trilateral Wadden Sea Region will be the best monitored and best understood coastal system in the world.

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The comparative analysis

The purpose of the comparative analysis is to ascertain

1. whether there is scope in the World Heritage List for the inclusion of the nominated property, and
2. to demonstrate that there are no comparable properties globally with similar values that might be nominated in the future.



Starting point

Starting point: define the potential Outstanding Universal Values and its related features or attributes.

In my own words: *what are the Guinness Book of World Records?*

Important: include *attributes* and *integrity*.



What are *attributes*?

- Attributes are aspects of a property which are associated with or express the Outstanding Universal Value. Attributes can be tangible (physical) or intangible (nonphysical).
- For natural properties, the word 'features', is also used.
- Examples of attributes for natural properties could include:
 - visual or aesthetic significance;
 - scale of the extent of physical features or natural habitats;
 - intactness of physical or ecological processes;
 - naturalness, and intactness of natural systems;
 - viability of populations of rare species; and
 - rarity.



Attributes in the Wadden Sea

- In the Wadden Sea we define attributes to be *specific* and *measurable*:
- *Specific*: **What** –processes / habitats–? **Which** –rare species–? **Where** –are the most unique parts–?
- *Measurable*: **How much** –productivity–? **How many** –benthic species–? **How large** –mudflat area–? **How important** –to migratory birds–?



Example attributes for the Wadden

- Largest tidal flat and barrier island depositional system in the world.
- Area of international importance for five threatened bird species.
- Highest primary productivity in the world above 42 degrees latitude.



What is *integrity*?

- (Authenticity only relates to cultural properties.)
- Integrity: a measure of the *wholeness*, *intactness* and *absence of threats* of the natural heritage and its attributes.

The extent to which the property:

- is of adequate size to ensure the complete representation of the features and processes which convey the property's significance.
- includes all elements [attributes] necessary to express its Outstanding Universal Value.
- suffers from adverse effects of development and/or neglect.



Example attributes for the Wadden

- The area of the property is of sufficient size to maintain critical processes and to protect key features.
- The human and financial resources in a trilateral governance structure are adequate to protect, manage and monitor the property.
- The planning and regulation of use by the population living in or adjacent to the property incorporates the protection and conservation of the property.



Comparative analysis: First task

First task: to ascertain whether the combination of values and attributes is already represented on the World Heritage List. This is done by comparing the nominated property with other World Heritage properties already inscribed.

Method: work through the WH-list for “marine sites”, “archipelagos” and “tidal flat systems” or “mudflats”.

Compare with WH-properties such as *Kvarken Archipelago*, *Cat Ba Archipelago*, *Sundarbans*, *Banc d'Arguin* and *Wadden Sea*.



Comparative analysis: Second task

Second task: to consider whether, in the future, other similar properties could be nominated from other parts of the world.

The nominated property needs to be compared with other known examples based on the selected values and attributes.

Comparison with ALL other comparable systems in the world.



Method for Second task

- Make a database for all (many) tidal flat systems in the world.
- **Categorize** by abiotic factors:
 - Size
 - Climate zone
 - River-dominated, Tide-dominated or Wave-dominated
 - Microtidal, mesotidal or macrotidal
 - Presence/absence of islands → beach barrier or other
- And biotic factors:
 - Presence/absence of mangroves, corals, seagrass, cordgrass
 - Macrobenthos abundance, primary production, etc. etc.



Method for Second task

- List and score the **attributes** of the Getbol. For instance the number of islands, the character of the mudflats, the seasonality in sediment properties, the depth of the oxic layer in the sediment, the number of migratory birds, the rarity of birds, the number and biomass of macrobenthos, etc.
- Work through the long list of tidal flat systems and **eliminate**.
- Use existing knowledge, for example on the following ecological attributes:



Primary production

- The primary productivity of the Korean tidal flats is not smaller than that in other comparable tidal areas such as the European Wadden Sea. Recent studies reported a daily productivity of ca. 1 000 mg C m⁻² d⁻¹ from a mudflat in the Gyeonggi Bay (Kwon et al., 2014).
- An annual microphytobenthos production of 546.15 g C m⁻² yr⁻¹ from a sand flat in Nakdong estuary (Du and Chung, 2009) was reported. This productivity seems to be within the top levels of MPBs primary production in the world.
- *Wadden Sea MPB production is 200 g C m⁻² yr⁻¹*



Microphytobenthos

- A total of 371 taxa were recorded in the Saemangeum tidal flat. A recent floristic study reporting 23 *Amphora* species with new records of 3 species in the Saemangeum supported the continuing great biodiversity of benthic diatoms in the given area (Park and Koh, 2012).
- Park et al. (2012, 2013) established a new diatom genus, *Moreneis*, together with description of four new *Fogedia* species indicating a hidden floral diversity of the Korean tidal flat.
- *Wadden Sea has 260 species of microphytobenthos.*



Macrozoobenthos

- Ecological studies on benthic organisms along the Korean tidal flats successfully supported the great faunal biodiversity, for example a total of 624 species for macrozoobenthos species in the West Sea (Park et al., 2014).
- *Wadden Sea has about 400 macrobenthic species.*



Birds

- Describe the importance for endangered birds: Spoon-billed Sandpiper, Black-faced Spoonbill, Nordmann's Greenshank.
- Describe the importance of the Getbol for the flyway population.



Third task: Conclude

Stress the unique attributes of the Getbol rocky archipelago tidal flat system: wave-dominated sand flats and macrotidal mud flats with high primary productivity, abundant macrozoobenthos, endangered bird species.

The comparative analysis must **draw conclusions**. The analysis should show that there *is* room on the List for the nominated property, and that there are ***no other similar properties*** that could be nominated.

