

# Tides of time



Wadden Sea, located on the Dutch and German North Sea coast, was inscribed on Unesco's prestigious World Heritage List in June for its 'outstanding universal value'

Every year, an average of 10 million migratory birds pass through the Wadden Sea.

SPOTLIGHT | A complex mosaic

## Wadden Sea: In Germany and the Netherlands, a new World Heritage marine site

The Wadden Sea forms the world's largest unbroken collection of tidal sandflats and mudflats — one of the world's first-class ecosystems of this kind. Its biological and geological processes are able to function essentially in a natural way despite being in one of the most populated and intensively transformed areas on Earth.

Wadden Sea is also one of Unesco's newest World Heritage sites. Protected for 25 years by Germany, the Netherlands and Denmark, Wadden Sea — after a successful transnational nomination by Germany and the Netherlands — was inscribed on the World Heritage List in June, when the World Heritage Committee convened in Seville at its yearly summit.

A 400-kilometer (250-mile) strip on the Dutch and German North Sea coast, it comprises the Dutch Wadden Sea Conservation Area and three German Wadden Sea national parks of Lower Saxony and Schleswig-Holstein, first protected in the 1980s and '90s. The new World Heritage site embodies two-thirds of the whole Wadden Sea. Ten thousand square kilometers (3,800 square miles) of different environments converge in a complex mosaic of transitional habitats: tide channels, sand shoals, sea-grass meadows, mussel beds, estuaries, beaches and dunes. Coastal wetland regions are not usually rich in plant and animal diversity, but Wadden Sea is an exception: it is home to 10,000 plant and animal species — more than 2,000 different flora and fauna in its salt marshes alone, with another 3,000 in its marine areas. These include thousands of seals and porpoises.

Scientists consider Wadden Sea a unique geological reference among tidal basins. It has accumulated sediment for 8,000 years, and the International Union for Conservation of Nature (IUCN) deems it one of the planet's most extensive tidal flat depositional systems. Its shifting, tide-sculpted landscape represents an open laboratory for biologists seeking to study how plants and animals adapt to a constantly varying environment.

For decades, naturalists have flocked here to observe the ecology of intertidal mudlands and learn what happens when freshwater meets the sea. Their studies have advanced our knowledge of the growth of salt-marsh habitats, how the sea level increases and the way vegetation develops in special biotopes like dunes. Notes Pedro Rosabal, a senior program officer for the IUCN: "Most of the things we have learned about depositional systems and coastal geo-dynamics are the result of many years of research in the Wadden Sea."

High tides flood the flats twice a day. When they ebb, the exposed basin teems with worms, crabs, snails, shrimp, molluscs, starfish and other species that live in

the sand. This brings the tourists, who enjoy strolling on the living seabed and spotting the myriad varieties of marine life. But this invertebrate abundance is also key to what is perhaps Wadden Sea's most important contribution to the planet: its role as a sanctuary for migratory birds that come here to feed.

At times, six million of these feathered nomads can be present. On average, 10 million pass through each year, stopping in summer and autumn, at this midpoint on their trek from spring breeding grounds in Siberia, Canada or Scandinavia to warmer winter homes in southern Europe or Africa. Geese, gulls and cormorants take advantage of the wealth of available food to prepare for their onward journey. "It's the main fueling station for these

migratory birds," says Rosabal. "We're talking about millions of birds. Without Wadden Sea, thousands of migratory bird species could disappear." There is another reason why Wadden Sea is important: 90 percent of certain species of Europe's duck population come in July to molt. During the month while their feathers are changing, the birds cannot fly. Wadden Sea offers them a rare haven where they can be assured of survival because of existing protective measures.

The site's management takes its responsibility so seriously that the few paths in the dunes and salt marshes

that are open to the public are closed off during breeding times. Says Harald Marencic, deputy secretary of the Common Wadden Sea Secretariat: "For offshore areas where birds molt, there are additional agreements with fishermen and leisure boats to avoid these areas at specific times of the year."

Every year, 14 million tourists visit Wadden Sea, and World Heritage status will likely increase these numbers. The IUCN has proposed in its Evaluation Report the need for an integrated tourism-development strategy for this transnational World Heritage site to minimize this potential impact. Wadden Sea has nearly three decades of tourism management behind it, and it has shaped a comprehensive preservation and monitoring program that has divided the site into different conservation zones, some more protected than others.

Enforcement is handled by environmental agencies and national park administrations. But because it is a large area, Wadden Sea also maintains close cooperation with other agencies, like coastal-protection and water-management services, and local municipalities. "The local people see the Wadden Sea as something special," Rosabal says. "They are committed to preserving it. And when you have local people, local authorities — even the kids — talking about the need to maintain Wadden Sea, there is a high chance of it being preserved for future generations." ■

**Sites inscribed in 2009**

In June, 13 new sites were inscribed on Unesco's World Heritage List. These include two natural sites, Wadden Sea and Italy's Dolomite mountains, and 11 cultural sites: Belgium's Stoclet House; the Ruins of Loropéni in Burkina Faso; China's sacred Buddhist Mount Wutai; the historic center of Ribelra Grande (Cape Verde); Iran's fifth-century Shushtar Historical Hydraulic System; the Sacred City of Caral-Supe in Peru; Korea's Royal Tombs of the Joseon Dynasty; the Roman Tower of Hercules in La Coruña harbor, Spain; the Sulaiman-Too Sacred Mountain in Kyrgyzstan; Switzerland's La Chaux-de-Fonds/Le Locle, watchmaking town-planning; and the United Kingdom's Industrial Revolution-era Pontcysyllte Aqueduct and Canal. Visit <http://whc.unesco.org>

SELECTION | Evaluating natural sites

## How does Unesco select its World Heritage sites?

The inscription of a site on Unesco's prestigious World Heritage List is just the tip of the iceberg, capping an exhaustive process of nomination and evaluation. For all natural sites, and this includes marine sites, that process is led by a long-time Unesco partner, the International Union for Conservation of Nature. Based near Geneva, the IUCN is a global environmental network, with more than 1,000 government and nongovernmental-organization members, and about 11,000 volunteer scientists in over 160 countries. As the World Heritage Convention's advisory body for nature, the IUCN receives files from states putting forward sites for World Heritage consideration. For each, it undertakes a yearlong process to determine whether the proposed property meets Unesco's strict standards.

This process always includes sending people to the site. Says Tim Badman, IUCN special adviser on World Heritage, "We have to see whether it's a well-managed, properly protected place, a place where World Heritage really lives." This onsite, fact-finding mission usually takes from one to two weeks,

depending on the complexity and extent of the nominated site. The IUCN meets the sites' managers, speaks with governments and visits the communities that live and work there. Says Pedro Rosabal, IUCN senior program officer: "On the evaluation mission to the Wadden Sea, we talked with around 200 local people. You need to hear their concerns and opinions because they know what can or can't be done."

Understanding local attitudes is vital for a site's future maintenance and survival, and the IUCN listens attentively. "The community must be involved," notes Josephine Langley, a monitoring officer for the IUCN. "If there is no local support, they will have problems down the line, like poaching."

A fortnight's field trip cannot generate

sufficient information to produce a recommendation, either positive or negative, for Unesco. This is why, in parallel, months before and during the visit, the IUCN pores over all available information on the proposed site — from books, articles and conferences to the Internet. Authorities from its global network weigh in, as well. The question everyone must answer is: does the site meet the criteria the World Heritage Committee has set? Foremost among those conditions is the fundamental concept of "outstanding universal value," meaning the site must be of global, not just regional or local, importance. A property must also be well managed and its long-term protection assured. The IUCN considers these standards for every site it evaluates, then prepares its report, proposing recommendations to the World Heritage Committee, which decides whether a site should be inscribed on the World Heritage List. In some cases, the nomination needs to be reviewed in relation to the justification for the site's "outstanding universal value" or to enhance its management regime for its potential inscription at a later stage.

All World Heritage missions are challenging for the IUCN, but marine sites are especially so, as they are often large and difficult to access. Says Badman: "We look at extensive areas of ocean, sometimes whole groups of islands. And for a typical evaluation, we have a maximum of two weeks, normally less, to go onsite and get to know a place. It's not easy." ■

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