

# Life on the sea cliffs: Northern gannets from Helgoland

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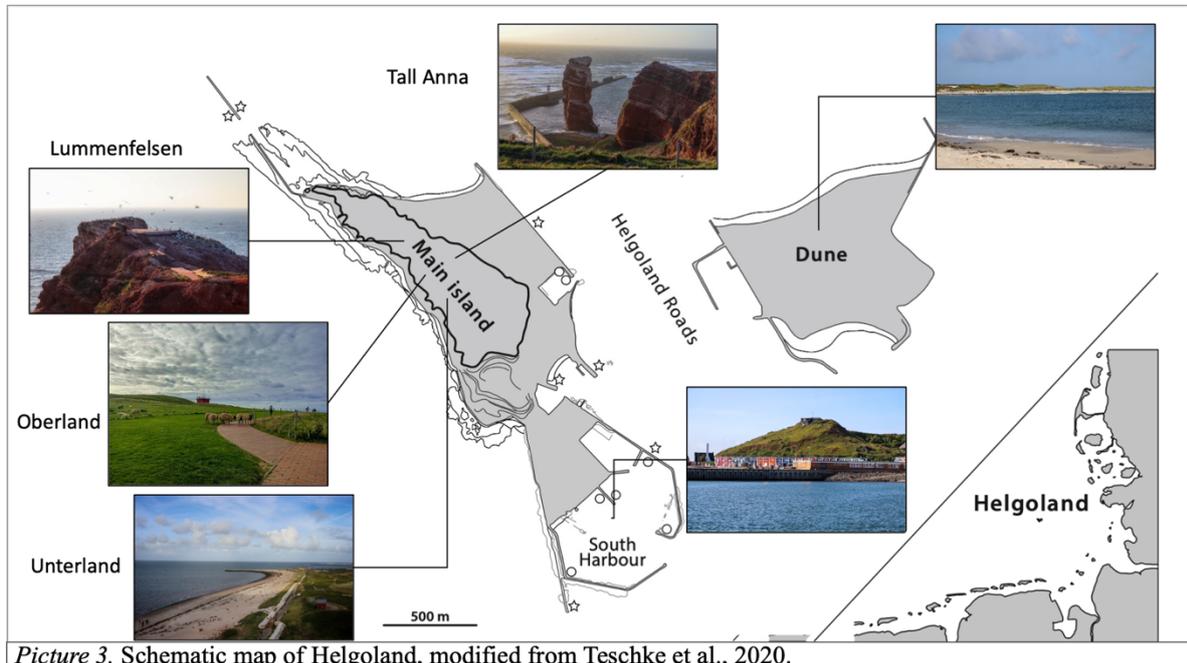
*Picture 1.* Community of Northern gannets on Lummenfelsen.

When we first spotted Helgoland at a far distance after our long ferry journey, we had no clue about what all this beautiful island had in stock for us. During the travel, time seemed to be long and short at the same time. I have a neat memory of the cold wind blowing on my face the smell of salty sea water, and the soothing noise of the waves hitting the boat. Once reached the port, we were welcomed by brightly coloured fishermen's toolsheds lining the walkway from the ferries to the main city area. And from that moment on, there was so much to enjoy and experience in this amazing beautiful island.



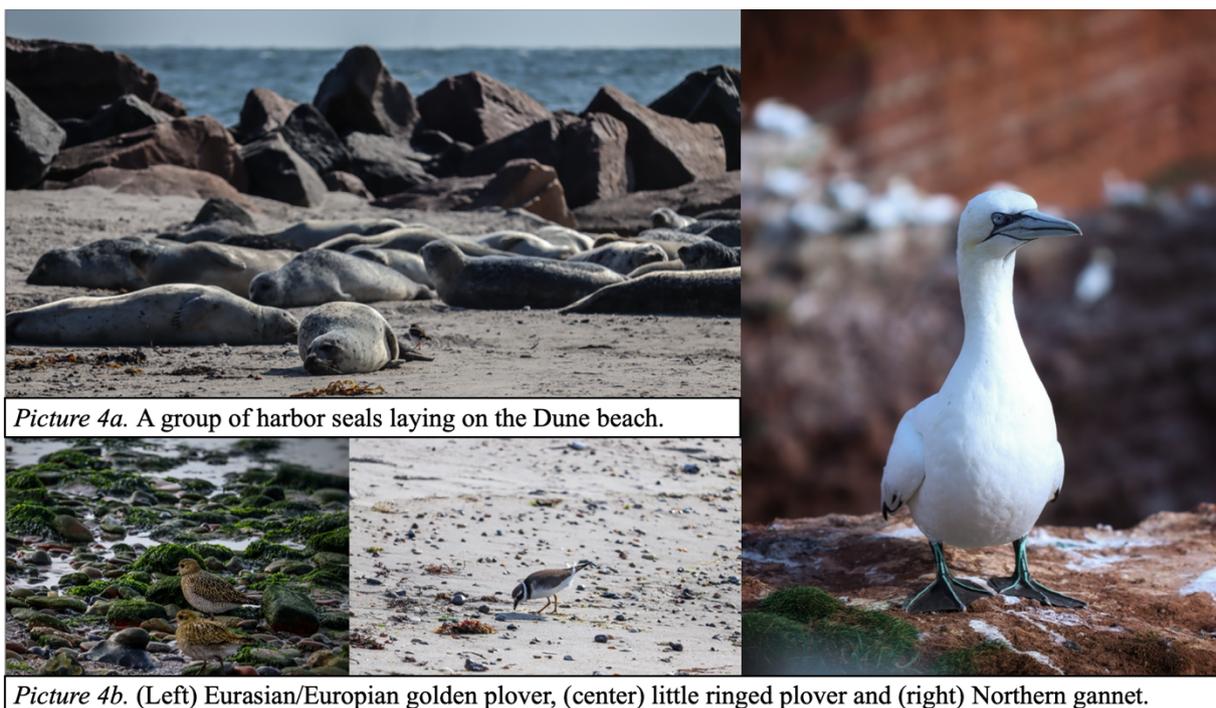
*Picture 2.* On the left, Helgoland visible at a distance from the high-speed ferry ride. On the right, brightly colored fishermen's toolsheds lining the walkway from the main city area.

Helgoland is a small archipelago in the North Sea, and it is the only island of Germany located not in the vicinity of the mainland. It is composed of a main island and a smaller island (*Düne*). The main island shows two main landscapes: the upper land area (*Oberland*), with beautiful views along the hiking/walking trails, and the lower area (*Unterland*) with the main city area and beaches.



Picture 3. Schematic map of Helgoland, modified from Teschke et al., 2020.

Every part of Helgoland is rich in biodiversity, which changes according to different seasons. Northern gannets and the grey and harbor seals are among the important highlights of wildlife in the island. In particular, Helgoland is the only breeding place of northern gannets in Germany and they breed here since 1991. Apart from the gannets, plovers, guillemots, kittiwakes, razorbills fulmars are among the other sea birds that breed here. Helgoland, the paradise for birdwatchers is the place with the largest recorded number of bird species in all of Central Europe with about 430 species counted so far. The Vogelwarte Helgoland, founded in 1910 focuses on bird migration and seabird ecology. One can also observe numerous insects and also some rare plants like sea fennels or the cliff cabbage here.



Picture 4a. A group of harbor seals laying on the Düne beach.

Picture 4b. (Left) Eurasian/European golden plover, (center) little ringed plover and (right) Northern gannet.

The Lummenfelsen (Lummen: "guillemots", Felsen: "cliffs"), the smallest nature reserve in Germany, and the Tall Anna (German: "Lange Anna") are the main sea cliffs where we can find large communities of Northern gannets. As one approach closer to the bird cliffs, their loud noise and a strong smell of excreta already greet you even before you get their first glimpse. In June, these cliffs become the stage for the most spectacular event one can witness in nature, the guillemot jump. The young guillemots jump daringly and safely from the cliff into the sea waves where they are expected by their parents. Who would have imagined seeing these red sandy cliffs from a distance that these are such a happening place of nature.



Picture 5a. Group of Northern gannet on the Lummenfelsen rocky edge.



Picture 5b. View of the Tall Anna.



Picture 5c. View of the Lummenfelsen.

Windy sea cliffs are very important for the gannets because of their long narrow wings that are specially adapted for hunting at the sea, which on the other hand make it difficult for them to land and take off without the assistance from the wind. Gannets need to catch relatively larger fish from the sea to feed their chicks. The evolutionary adaptations that enable them to hunt these fish are remarkable. Among the sea birds offshore, only a gannet has the weight to plunge that deep into the sea and the strength to handle these powerful fish. They can fold their wings to attain a tight streamlined body shape which allows them to plunge-dive from 9 to 15 meters above the sea and then reach up to a speed of 60mph in the water without damaging their wings on impact. Once in the water, the gannets can swim very well using both their wings and feet which allows them to plunge even deeper reaching fish down to around 30 meters. To reduce any chance of impact injuries from the diving, they have air sacs in the head and neck which inflates like air bags in cars. They also have fused nostrils to prevent water from entering the sinuses and a binocular vision to perceive depth along with the ability to adapt their eyesight by changing the lens shape within split seconds. These adaptations give them a sharp vision both above and below the waves for hunting fish.



Picture 6. Northern gannets flying on the sea.

Gannet colonies with nests close to each other help in enhancing reproductive success as their collective noise and pair-bonding displays stimulate all the birds enabling them to mate and lay their eggs early enough to raise the young ones before the approach of winter storms. Gannets build their nests using seaweeds as their base. Sadly, it's hard to now spot a gannet nest without pieces of old fishnets or ropes which can often lead to their entanglement and hanging from the cliff to death.



Picture 7. Colony of Northern gannets on the sea cliff.

A visit to these bird cliffs offers an amazing experience of witnessing such beautiful creations of nature and learning about their adaptations that enable them to thrive at these sea cliffs. One can always end their day at Helgoland by watching a beautiful sunset at the beach or the cliffs.



Picture 8. The perfect goodbye: the last sunset we saw on Helgoland.

#### References:

- 1) Teschke, K., Karez, R., Schubert, P.R. et al. Colonisation success of introduced oysters is driven by wave-related exposure. *Biol Invasions* 22, 2121–2127 (2020).  
<https://doi.org/10.1007/s10530-020-02246-0>.
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