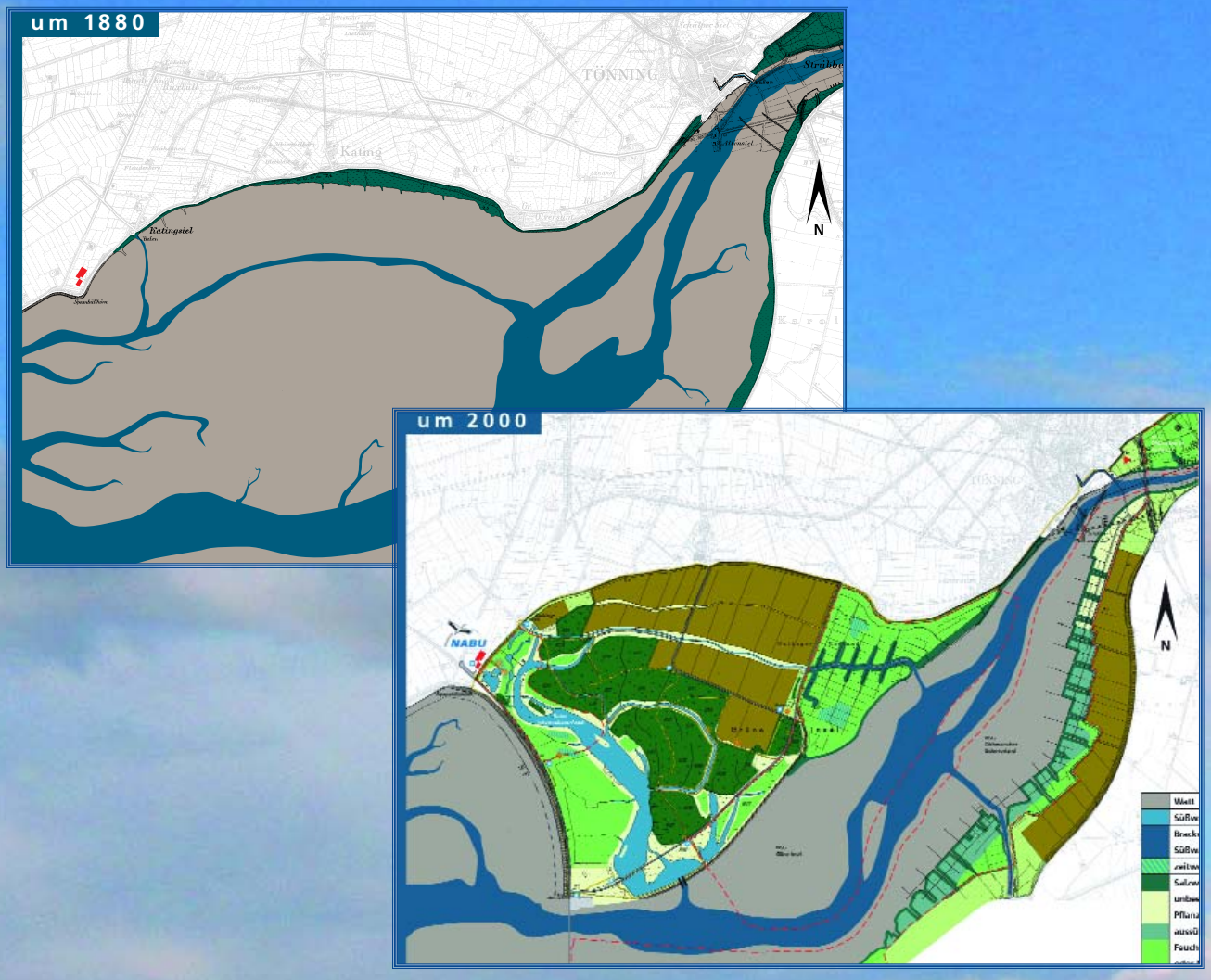
NABU Naturzentrum Katinger Watt

Times of changing

Development of the Katinger Foreshore



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Arround 1880

Natural dynamic of the water

The Katinger Watt, as you see it today, is a landscape that was changed mainly due to human intervention. At the end of the 19th century man had hardly affected the almost 5 km wide estuary. On the North Frisian side the narrow foreshore near Kating and on the Dithmarshian side the narrow foreshore Schülper Siel and the well developed foreshore area of the "Hundeknöll" existed. Maybe seals rested there (name). Katingsiel was a harbour and the still existing "Schankwirtschaft Andresen" was then a harbour tavern and changing station of mail horses.

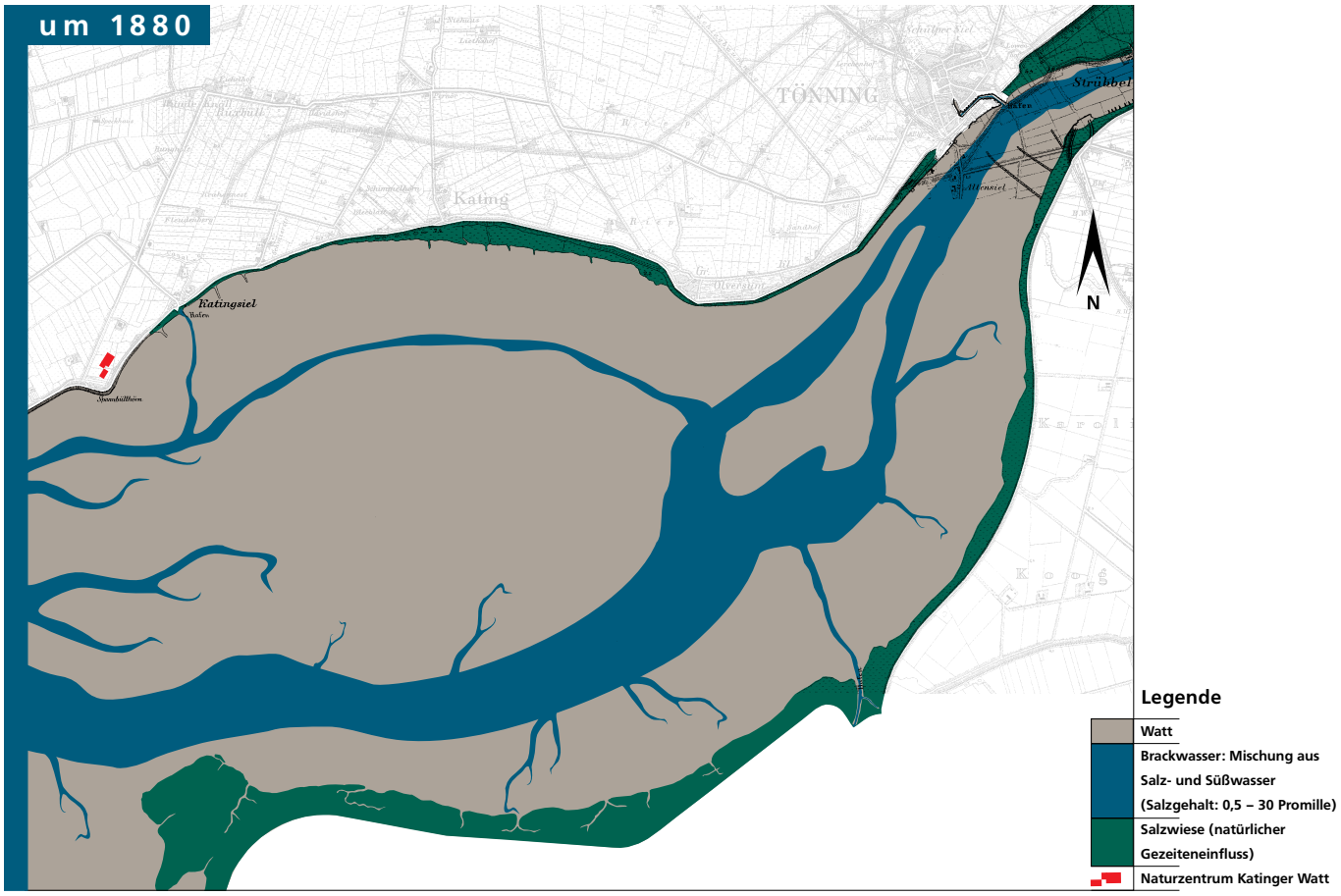
The estuary was influenced by the tides. Because of its funnel-like form the water speed decreased when flowing up the estuary and sediments from the Wadden Sea were left at favourable places along the foreshore. During low tide though most of these sediments were washed back into the ocean by the water coming from the Eider. The constant decreasing of the Eider's catchment area because of dams along its confluences in the upper reaches, caused less and less water coming from the Eider. The speed of the water decreased and it didn't have enough power to wash out all the sediments. The Eider estuary started to silt up.

The detailed map 'channel-shift from 1784 - 1964' clearly shows the dynamic in the estuary: The water constantly changes its main channel.

In the GLEITHANG area (the inner side of a curve) sediment is left behind by the slow flowing water. In comparison: in the PRALLHANG area (the outer side of a curve) the faster water washes sediments away.

The shift of the main channel between the years 1784 and 1845 is a precondition for the later development of the "Green Island" foreshore of Olversum. This part of the Eider is now in the area of the GLEITHANG. High tide brings in lots of sand and other particles which now all cause quick silting up of the extended mud-flats between Tönning and Katingsiel.

In contrary the main-channel shifts to the south and big parts of the foreshore area of the Hundeknöll get washed away (see following map).



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Arround 1930

Land disappears - Land evolves

At the dawning of the 20th century, the Nord-Ostsee-Channel (built from 1887 - 1895; called Emperor-Wilhelm-Channel before 1948) separates the upper reaches of the Eider from the lower reaches. All the southern confluences don't flow into the upper reaches of the Eider anymore, once again the Eider looses catchment area. As a result of this the amount of water flowing downstream to the North Sea is reduced.

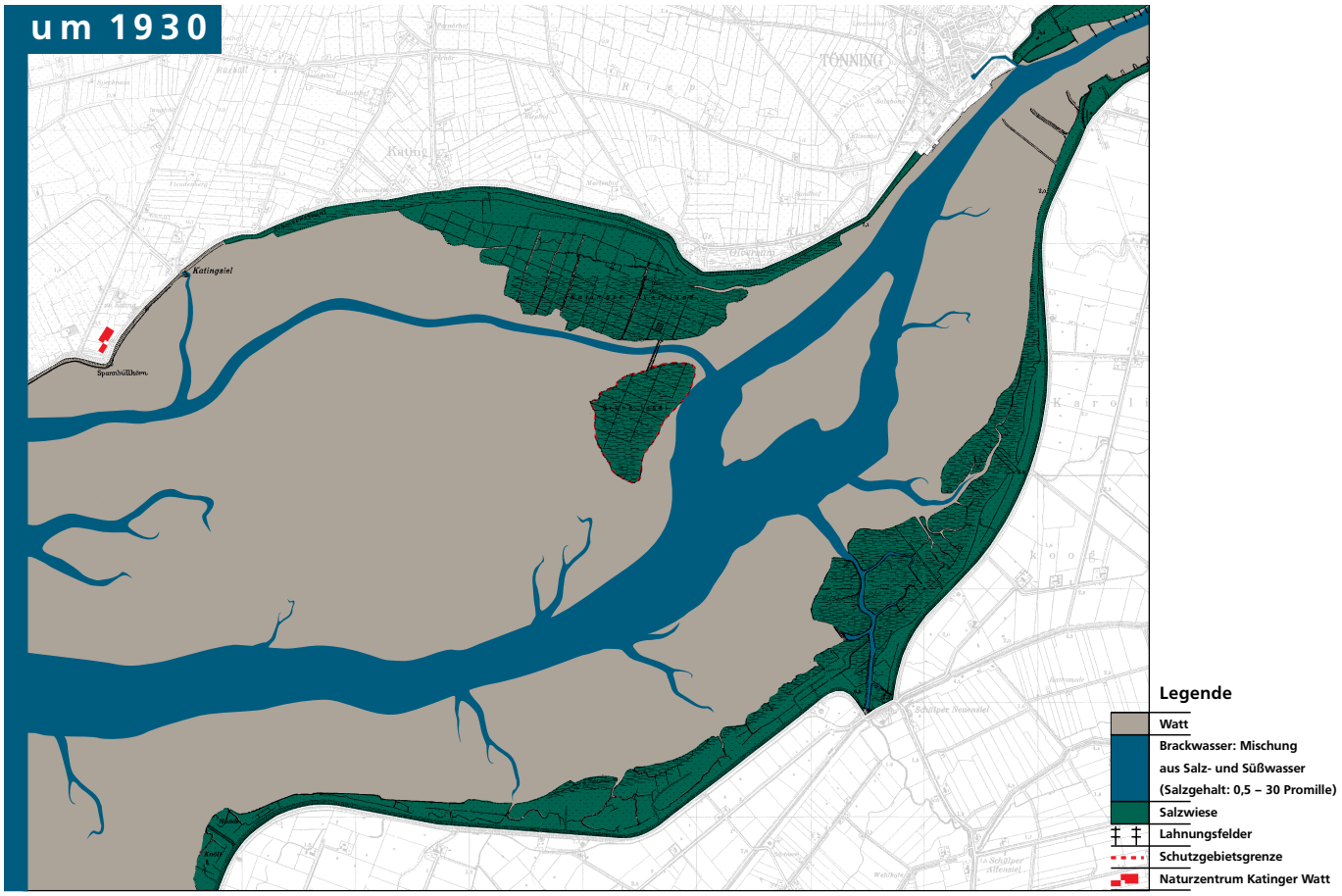
Since the main-channel shifts to the south, the silting up of sediments on the northern foreshore increases. Starting in 1900 the **"Green Island"** develops southwest of Tönning. Its name refers to the green grass that soon starts growing and which enables sheep to feed on this new piece of land. During the next few years the Island moves towards **Olversum** by erosion and accretion (see graphic on the right).

In 1911 the island is connected to the mainland by a dyke for the first time. From 1928 until today the "Green Island" has always been connected to the foreshore of Olversum. The vegetation on the island now consists of an extended salt marsh on which sheep and geese graze.

The "Green Island" evolved in a natural way without any human interference. Along the rest of the foreshores in the Eider estuary though, the formation of new land is supported by LAHNUNGSBAU. The new foreshores were supposed to decrease the strength of any incoming wave during a storm flood and protect the dykes.

Because of a big population of avocets the Organisation Jordsand achieves that the "Green Island" became a protecti-on area for seabirds in 1927. Probably because of frequent flooding the avocets leave the island though and move to the higher foreshores on the Dithmarshian side of the estuary. As only two breeding avocet pairs remain, Jordsand gives up the island as a protection area.

Along the south side of the estuary the foreshore at **Schülper Neuensiel** grows intensively bigger. The **Hundeknöll** though continues to lose land off the northern corner by Wessel-buren.



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Arround 1950

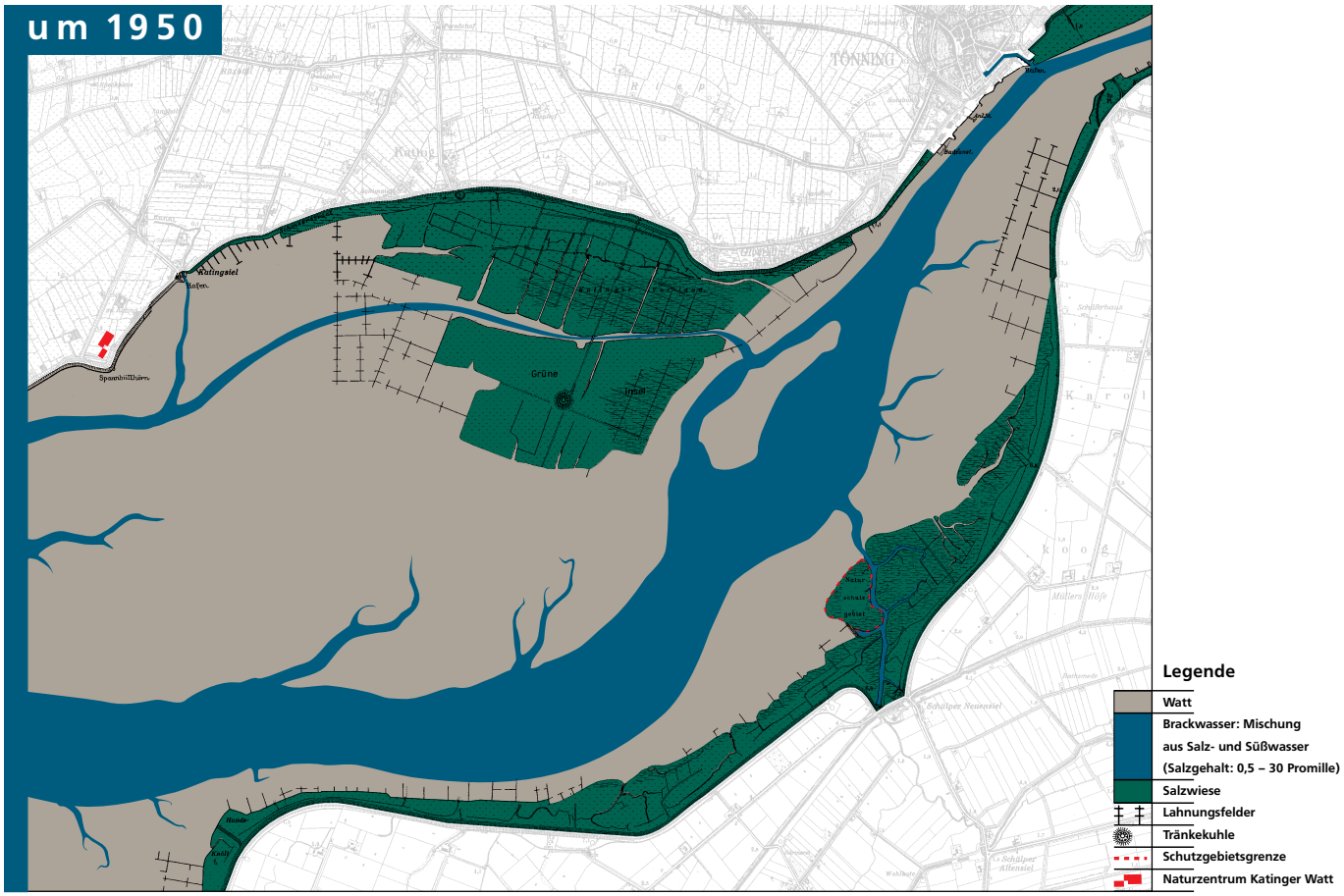
Land reclamation

Due to intensive land reclamation measurements the "Green Island" and the Katinger Foreshore both grow bigger and bigger. They almost meet.

During measurements to protect the dykes, breakwaters are built into the mud-flats: Two rows of 2, 50 m long wooden stakes that are rammed into the ground until only about half of the length can still be seen (up to the 1970's people did the ramming by hand!).
Between the stakes brushwood (Faschinen) is put and fixed there by trampling on it. The final touch is a thick wire which holds the brushwood down. Every breakwater surrounds an area of about 200 x 100 m (breakwater-fields). On the side where the sea water comes the palisade has an opening between 15 and 30 m (breakwater-gate). Many breakwater-fields can be built after another; they are connected by this gate. Twice a day the water flows into the breakwater-field during high tide. Once the water is in such a breakwater, its speed decreases rapidly and even fine sediments can settle on the ground. As time goes by, the breakwater-fields silt up more and more. Then ditches are dug to allow the water to flow in and out of the breakwater-fields without creating many water turbulences so that the sediment isn't washed away again. At first mud from these ditches is put on either side of them and after a while the normal high tide simply doesn't flood these so called beds anymore. Then the first salt marsh plants start settling there. Decade by decade the ditches get smaller and smaller as the beds grow wider and wider. The vegetation grows. When this new piece of land is only flooded about 200 times a year, saltmarsh grass starts growing, the favourite food of sheep and geese.

Conservation area "Vogelfreistätte Schülper Neuensiel"

In the year 1950 a 19,4 hectare big foreshore island off the south banks of the Eider is made into a conservation area. The island, which lies to the west side of the harbour of Schülper Neuensiel, is still separated by a tidal creek from the main land at that time.



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Arround 1970

Coastal protection: The Eidersperrwerk is built

Because the Tidal-Eider (= river stretch influenced by the tides) silted up more and more and because of the damage the big storm flood from 1962 caused, it was decided in 1963 that the Eider should be dammed near the mouth of the river (General Plan for Coastal Protection). The main goal is that the length of the dykes that protect the interior country from the estuary all the way to Friedrichstadt is reduced from about 60 km to only 4,8 km. The final dam (it's not a dyke because there is water on both sides) is supposed to be built between Vollerwiek on the northern banks and the Hundeknöll on the southern banks of the river's mouth.

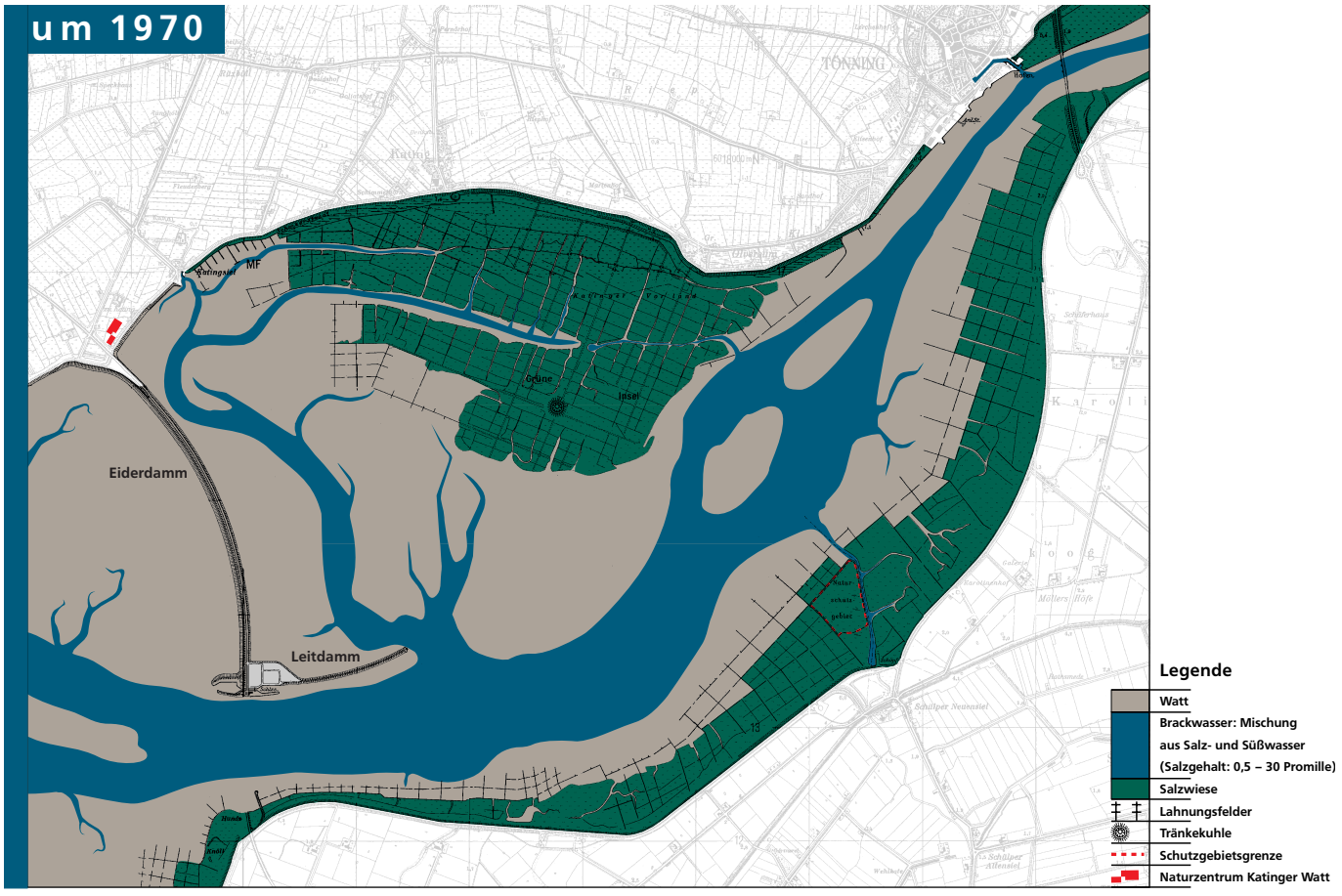
That was the destiny of the former biggest river of Schleswig-Holstein and the only tidal river of the country!

From 1967 to 1973 the 4,8 km long Eiderdam is built. the 8,5 m high dam of sand is protected by concrete against the waves. At first this dam is a "shaar" which means that it doesn't have any foreland towards the ocean. Now the water doesn't flow through the whole mouth with a length of 4,8 km anymore but only through the 200 m long Sperrwerk. Furthermore man can now control the speed of the water flowing up the river or flowing out to the ocean. The water level of the complete estuary is also controllable now. Not only the Eider foreshore but also the interior country is protected against storm floods. It becomes possible to drain the interior flats independently of storm floods. This allows a better usage of the country in general. The former Katinger Watt starts loosing salt and becomes sweeter and sweeter.

The new Eiderdam blocks the way of the tidal creek by Katingsiel so it can't flow to the North Sea anymore (see map). During the building of the dam this tidal creek changes its direction from west to south and finds a new possibility to flow into the Eider, which brings the water to the ocean. From the looking-tower in the Katinger Watt the former tidal creek, the "Katinger Priel", can still be seen very well.

After the Eiderdam is finished the question arouses what to do with the estuary. Landscape architects create eight different models of what is to become of the Katinger Watt. From a tidal influenced and natural landscape to a sweet water polder as a recreation area for people everything is included.

At first the development of an informed opinion tends to be against any usage compatible with the environment. The favourite idea is to make the Katinger Watt into a leisure and recreation area. Before that can be achieved a new dam has to be built along the northern part of the Katinger Watt to prevent the tidal influence. The 6 km long Leitdamm is built from the Eiderdam to the Green Island. The Katinger Watt is now no longer influenced by the tides at all and it starts to dry up.



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Arround 1975

Rearranging of the landscape

The tides flow through the 200 m wide Eidersperrwerk in the normal tidal intervals into the dammed estuary and back out into the North Sea. Their influence though is not as noticeable further upstream as it used to be. The position of the gates in the Sperrwerk can reduce the amount of water flowing up the Eider even more.

To achieve the plan of a "Leisure and Recreation Area Katinger Watt" drastic changes in the landscape have to be undertaken during the following years. The destruction of a very important rare type of habitat into a man-made landscape, which can continuously be found all over in Europe.

As a result of the building of the **Leitdamm** 1974 from the **Eiderdam** to the Green Island half of the estuary becomes a polder. Sluices in the dam and draining pipes in the ground enable the draining of this area. These were the last steps to change the estuary as a habitat for marine organisms into an artificial sweet water recreation area for land inhabitants.

The plan deals with the **different types of earth in the Katinger Watt:**

- On the extremely low-nutrient soil of the former sandy mud-flats the leisure area is supposed to be created. Soon though rare plants like orchids start growing on the poor soil.

- The high-nutrient soil of the former foreshore and of the Green Island is supposed to become an agricultural and forestry area.

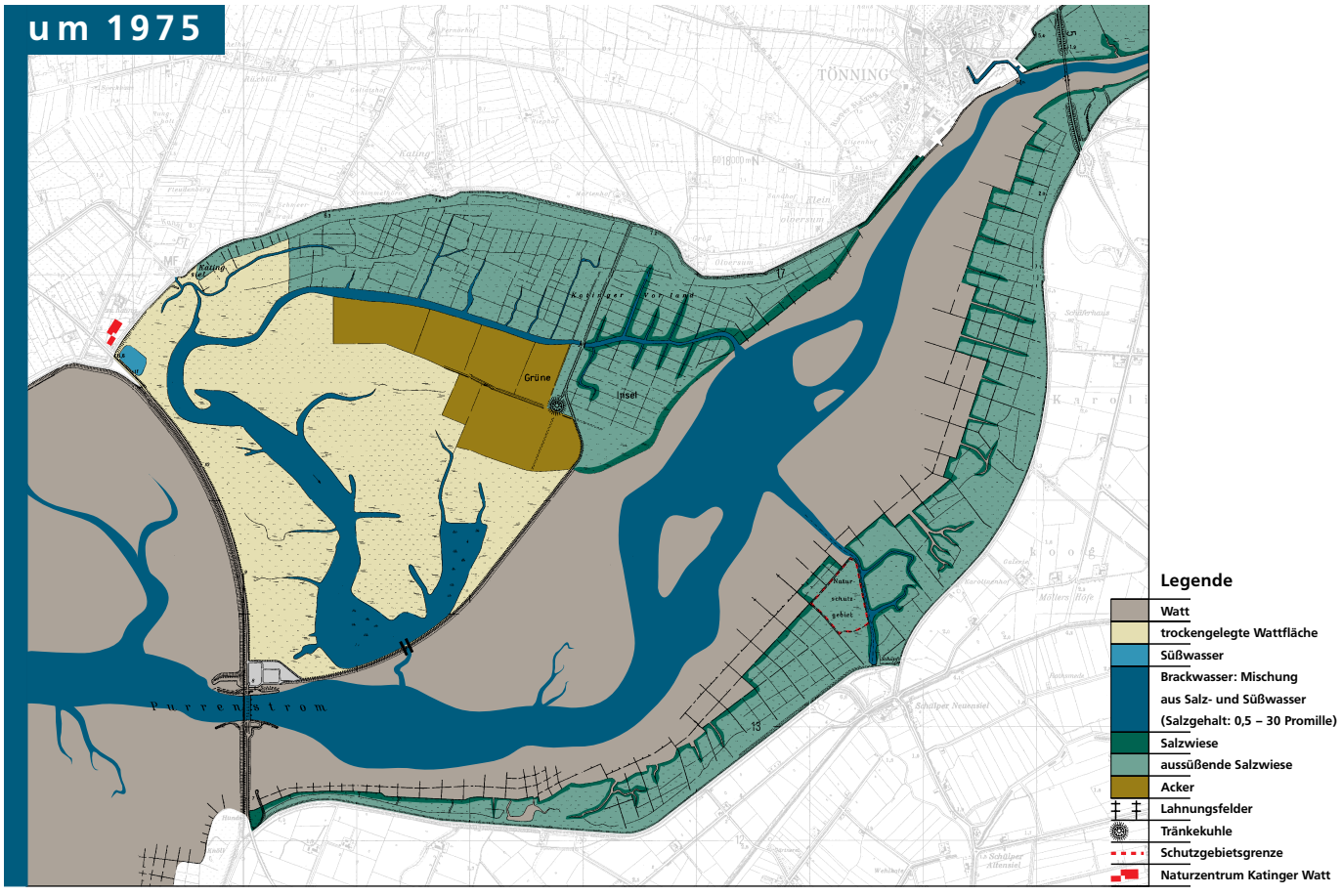
After the dykes are built, sandstorms occur on the former mud-flats of the Katinger Watt, which carry away the infertile sand. (In earlier time mud-flats were only dyked in, when salt marshes had developed on the fertile soil.)

In the area of the foreshore and the Green Island the soil is still salty. It takes lots of patience, and even more work, to prepare this ground for the planned forest:

- Tidal creeks have to be diverted to achieve the most favourable land utilization for the new forest.

- To get rid of the salt, a whole network of draining pipes is put into the ground. As time goes by, rain washes the salt out of the soil and out of the tidal creeks, too. The sluice in the Leitdamm enables water to flow into the Eider but not the other way around.

The first arable land is established on the first sweet areas.



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Arround 1980

What was possible, was done

From foreshore to fields

During the time from 1976 to 1981 350 hectare of the former fertile Katinger Foreshore are prepared to be changed into agricultural fields. A complete rearrangement is necessary to do this. The old curvy tidal creeks are filled with soil and new straight and deep ditches are dug to drain the area. To get rid of more salt and to support the draining existing meadowland - former salt marshes - is broke up. On the former mud-flats mustard is planted to prevent the sand from being blown away by the wind. Only about 200 hectare salt marsh of the Green Island is still used as a sheep meadow. Due to the missing salt, the plant world gradually changes to a sweet water marshland.

Between 1981 and 1986 parts of the Dithmarscher Foreshore were also changed to arable fields and meadowland - even though their plant and animal world would have been worth protecting from such influences. A low summer-dyke protects the crop from high water.

From mud-flats to a forest

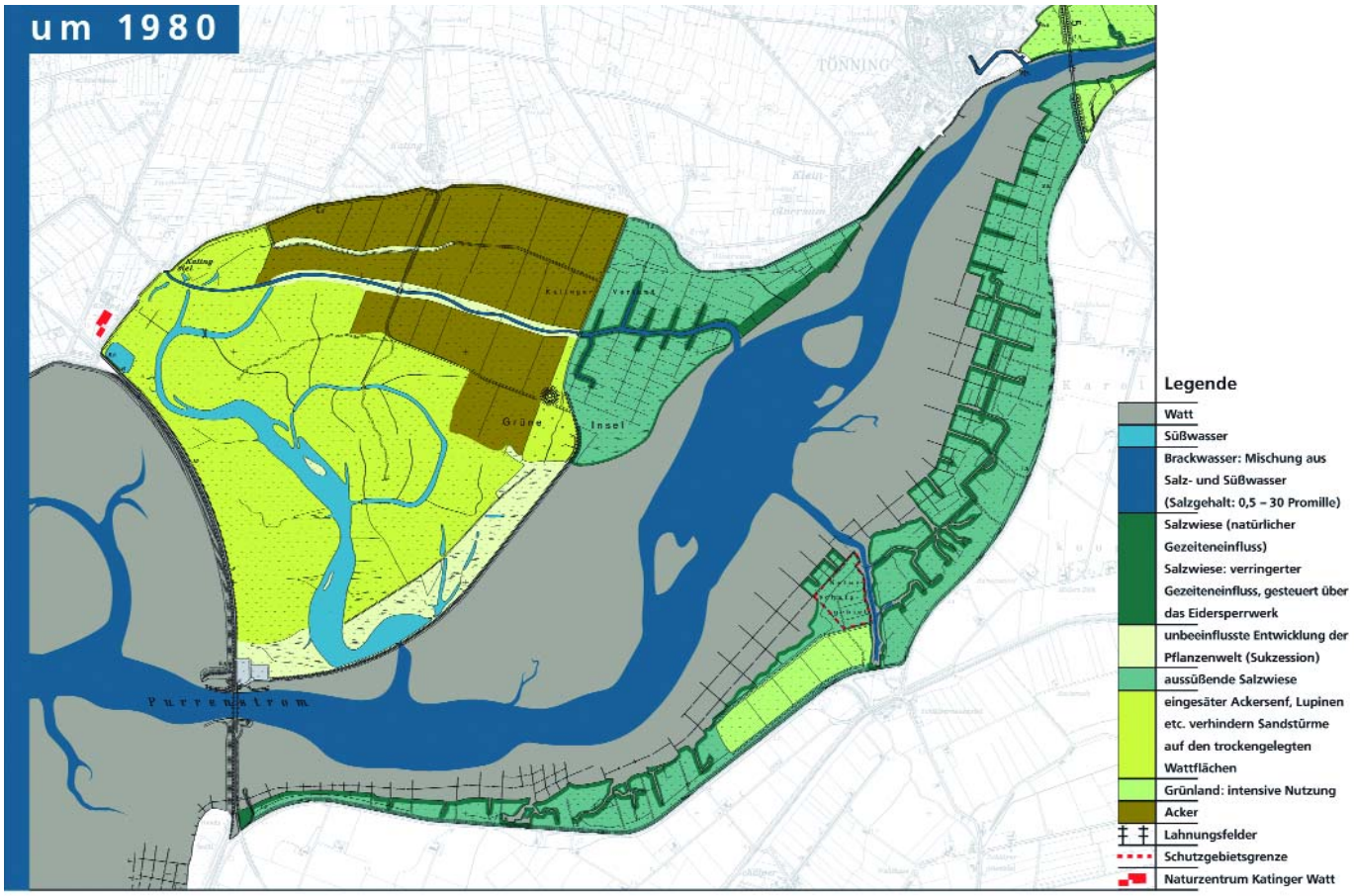
The heart of the planned leisure area was supposed to be a forest. Because of the "naturally" high water level though, only a very wet and amphibian forest would have grown. At that time not typical inhabitants of a wet forests like wren, swift and golden oriole were the main interest, but sports and leisure activities such as archery, roller-skating, parachute, golf, go-carts, horse-coach and also of course forestry were the goals.

To achieve these goals on an area of 300 hectare drastic intervention in the water balance was necessary: All together 7,8 km draining-pipes are put into the ground. 25 km of draining-ditches are dug, existing tidal creeks are dug deeper and are connected to the so called "Ring-Priel" on which water-sports would have been possible.

Between 1974 to 1981 1,75 million trees are planted on an area of 300 hectare - the third-biggest forest in Schleswig-Holstein is created. The soil has to be fertilized with inorganic fertilizer; lupines and clover were planted to add nitrogen to the soil and the natural growing grass was fought against with chemicals.

Sandy mud-flats for leisure pleasure

200 hectare former sandy mud-flats and 100 hectare water are provided for recreation and leisure time facilities.



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Arround 1985

The tourism concept

The infertile former sandy mud-flats to the west of the Katinger Priel are supposed to be used to create a whole landscape full of extensive recreation and leisure time facilities: A park-like area is supposed to be created which fully meets the tourists' needs and wishes. In the middle of this park the infrastructure for 9.900 overnight accommodations is supposed to be built, 16.000 people would have been able to find a "comfortable spot to stay" in the Katinger Watt.

From a leisure-park to an area of possibilities

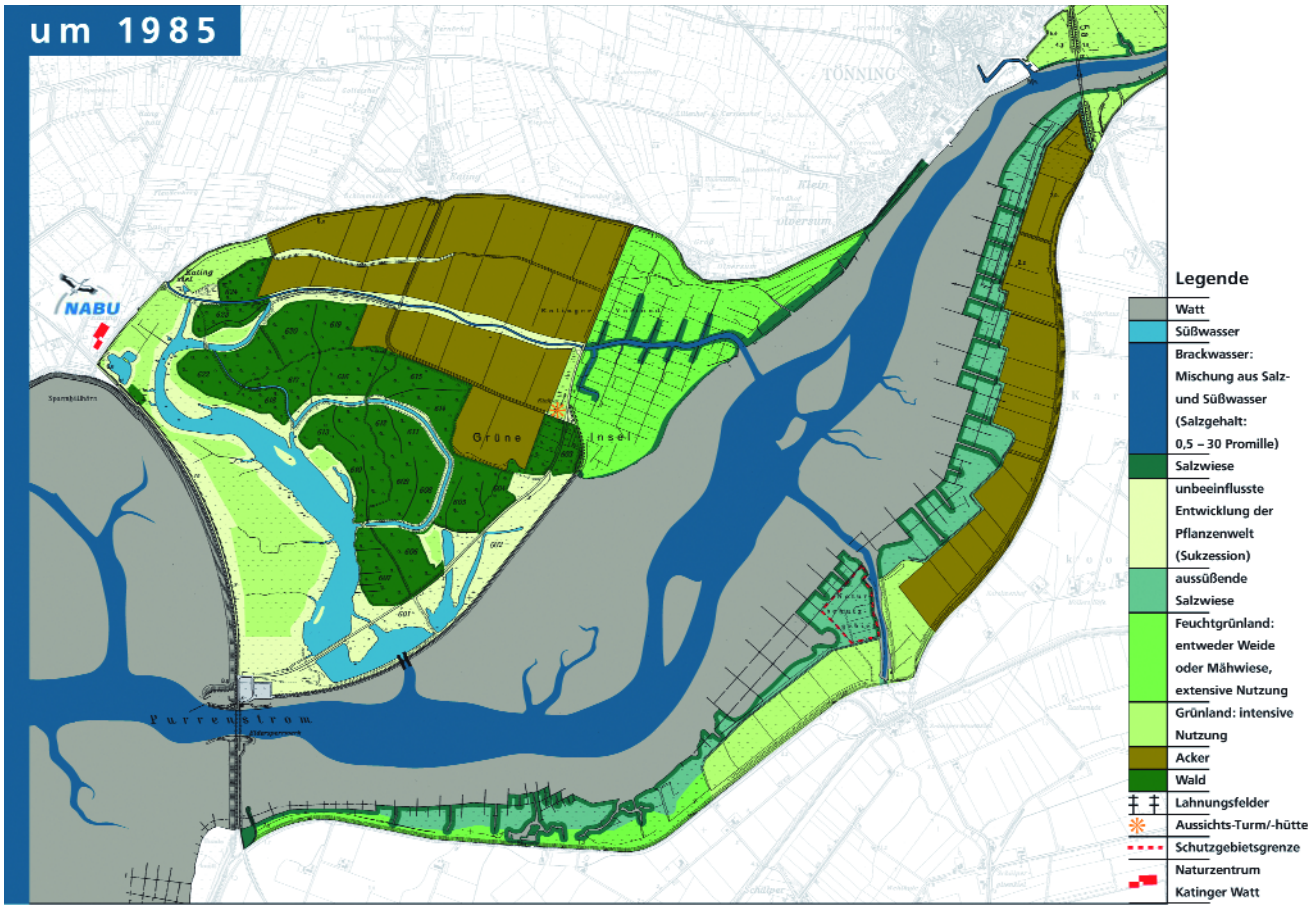
- The tourism concept for the Katinger Watt from 1969 plans a holiday village with 5,400 beds, a golf course, a small airport and space for 5,400 tents and camping vans.

- The first concrete building plans appear in 1985. The town of Tönning who owns most of the Katinger Watt wants to establish a holiday resort similar to the ideas from 1969. Massive resistance arises and in 1988 a citizen's initiative is founded.

- 1989 Tönning withdraws its plans concerning the camping site and the holiday resort. The further development of the Katinger Watt remains unclear until Tönning finally asks the government of Schleswig-Holstein in November 1990 not to make the area between the Katinger Priel and the Eiderdam into a recreation and leisure area anymore. Rather than a holiday resort the Katinger Watt is supposed to be turned into an area for recreation and adventure compatible with the environment.

The Norderloch-Ditch on the west side of the Green Island is the only tidal creek to Katingsiel that still remains affected by the tides since it is connected to the Eider. The water management from the Eidersperrwerk only allows an inflow of saltwater along the narrow side of the tidal creek so only there salt marsh plants can grow.

The southern part of Eiderstedt is drained by the Norderloch-Ditch. Because of the decreasing water speed of the tides, the ditch starts silting up though. Therefore the water coming from Eiderstedt can't flow into the Eider fast enough anymore. To improve the draining of Eiderstedt, the Norderloch-Ditch is dammed at the K 41 in 1995 and the water now flows through the Katinger Priel into the Eider.



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Today
Times of nature conservancy

A visible symbol for the new time is the 13,5 m high look-out tower with a platform that was erected in 1991. It is a symbol for the "symbiosis between man and nature" and shows that in the Katinger Watt green tourism is pursued.

The status and the need of protecting the new area are not only accepted, they are carried out!

Chronology of the success in nature conservancy:

Dec. 1989 The Green Island becomes a nature recreation area (NRA). The Dithmarscher Eider Foreshore becomes a NRA, too.

June 1990 The NABU establishes its information centre Lina-Hähnle-Haus in the former home of the late Frisian painter and action-artist Hein Hoop.

1991 The 100 hectare big Nature Information Area right next to the information centre is officially opened. Included is the look-out tower and two hides (wooden huts from which people can watch nature without disturbing the animals). The area to the west of the Katinger priel that had already been made into arable fields is changed into wet marshland again. This area is not only supposed to be developed into an ecologically intact landscape along the Eider but it is also supposed to meet the needs of green tourism.

1993 The 260 hectare big Oldensworter Foreshore becomes a NRA.

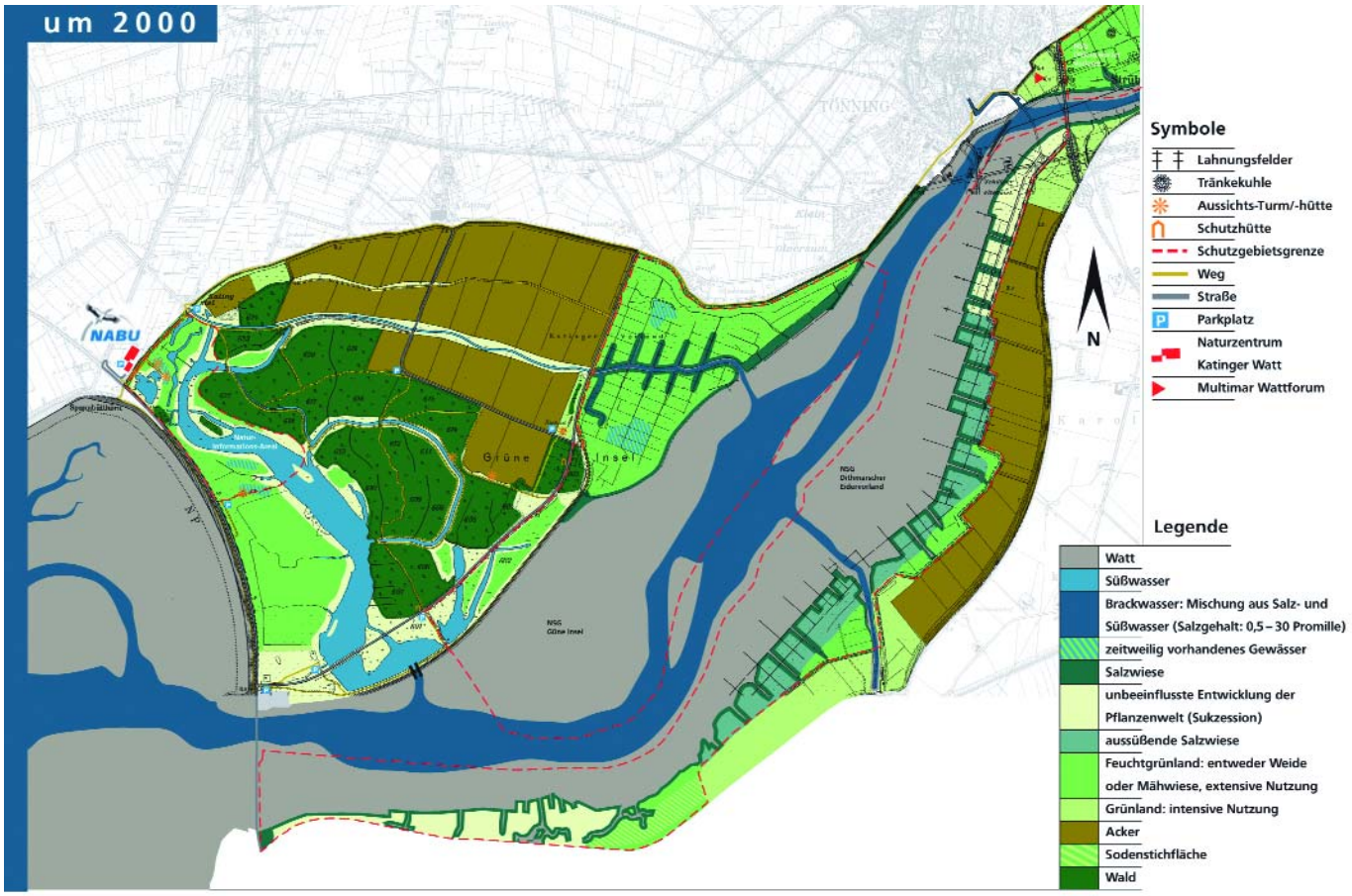
Since 1998 More meadows along the Eider's estuary are no longer used intensively. By building dams rainwater stays on these areas and they gradually change into wet marshland - an important habitat for many plants and animals.

The Estuary today

Variety of habitats and life

Due to human intervention a big variety of new habitats were created along the estuary of the Eider:

- During low tide the Remaining mud-flats still offer food for many ducks, wading birds and gulls. During high tide when the mud-flats are covered with water, these birds use the wet marshland to rest.



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♦ Wet marshland that is cut down after the breeding and hatching season in late summer. Then, an "ocean of flowers" emerges on this not very fertile ground which attracts lots of insects - favourite food of many young hatchlings.

♦ Wet marshland near the river is kept short by cows and sheep. The goal here is to prevent bushes growing on the areas and to preserve shallow water. Ideal conditions for frogs to lay their eggs, for ducks to look for food and for all kinds of birds that nest in meadows.

♦ Along the sides of bigger stretches of water reed can grow, a habitat for many insects and birds. The higher and older the reed is, the more species live in it.

♦ The Katinger Priel is a very quiet stretch of water, not many disturbances occur here. Along its banks many birds find not only find food, they also stay there to moult and to rest.

In this rather small area lots of different species of animals and plants with very different requirements on their habitat feel quite at home. Such areas with hardly any disturbances have become very rare in our landscape so there are some species living here that are endangered and some are even threatened to become extinct. Species of natural estuaries though have disappeared.

Aims of the nature conservancy along the Eiderestuary

♦ As much of the river landscape typical for this region is supposed to be preserved and developed. The maintenance of the remaining mud-flats in the estuary, the development of wet marshland, development of brackish water reeds and sweet water reeds and a variety of stretches of water are the main interest.

♦ The non profitable forestry is supposed to be stopped so the artificial forest can develop on its own. Because of the high water level the forest would turn into a riverside wood. A larger riverside wood does not exist in Schleswig-Holstein. This kind of wood would be typical for its location. It would show the situation of the times in which man did not influence nature as much as he does today.

♦ Very important is the connection of these different kinds of habitats so that animals can move freely from one to the other (integrated system of habitats).

Do you have some more questions? Do you want to take a guided tour through the Katinger Foreshore with any Explanations of history and the living animals and plants?

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