



## What is a National Park?

For centuries people thought that space, water and other natural resources were inexhaustible. As the world population grew, people increasingly exploited areas of previously untouched nature. They cut down trees to make way for farming. They hunted and kept animals in the surviving woodlands and forests. These woodlands gradually diminished in area. They were replaced by cultural landscapes which may look fairly natural, but in fact bear little relation to the original, unadulterated state.

The first misgivings about these developments were felt in the USA. They led in 1871 to the creation of Yellowstone as the first national park in the world. In 1909 Sweden was the first country in Europe to create a national park. Many other countries followed suit. In 1969 in response to the very different motives for designating national parks, the International Union for the Conservation of Nature and Natural Resources (IUCN), an agency of the United Nations, formulated a

definition of national parks which was to apply world-wide.

The main aim in creating national parks is to protect large natural areas and landscapes, and the species of flora and fauna they contain. Secondary aims include environmental education, nature-related recreation and scientific research. Nowadays national parks can be found in practically every country in Europe. Altogether they offer their visitors an overview of the great variety of the wildlife and landscapes of Europe.

The Dutch national parks fit well into the European network. In 1969 the Netherlands signed international agreements concerning the establishment of valuable nature reserves as national parks. The Dutch nature reserves may be relatively small, but often contain valuable ecosystems rarely found elsewhere, such as dunes, peat bogs, and heathland. You can safely assume that if an area is designated

as a national park, it contains valuable flora and fauna and is well worth a visit.

In the Netherlands national parks are designated by the Minister of Agriculture, Nature and Food Quality. A national park has been designated for all the landscapes which are characteristically Dutch. A national park is administered by a consultative body representing owners, managers and administrators. The provincial council provides the secretariat. The Ministry of Agriculture, Nature and Food Quality contributes a good deal to the costs of administration and maintenance, and information and education within the national park.

*View from the Plompe Toren*



## A word of welcome

Welcome to the Oosterschelde: the largest National Park in the Netherlands.

Welcome to a world of far horizons with strings of birds. Welcome to a rich water world ruled by the tides. Much of this world lies submerged beneath the water. It is inhabited by organisms, which form the basis of the huge wealth of the Oosterschelde. They give life to the Oosterschelde and also provide a source of income, since this area is an important fishing ground for mussels, oysters, flatfish and crab. In short, the nature values in the park are there to be enjoyed, but they can also be responsibly exploited. It is an area for both man and nature.

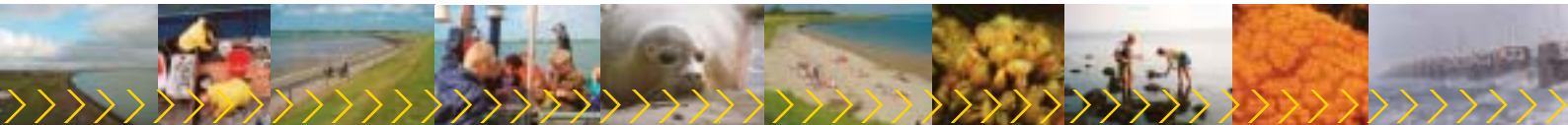
The Oosterschelde National Park covers over 37,000 hectares. An enormous pool of

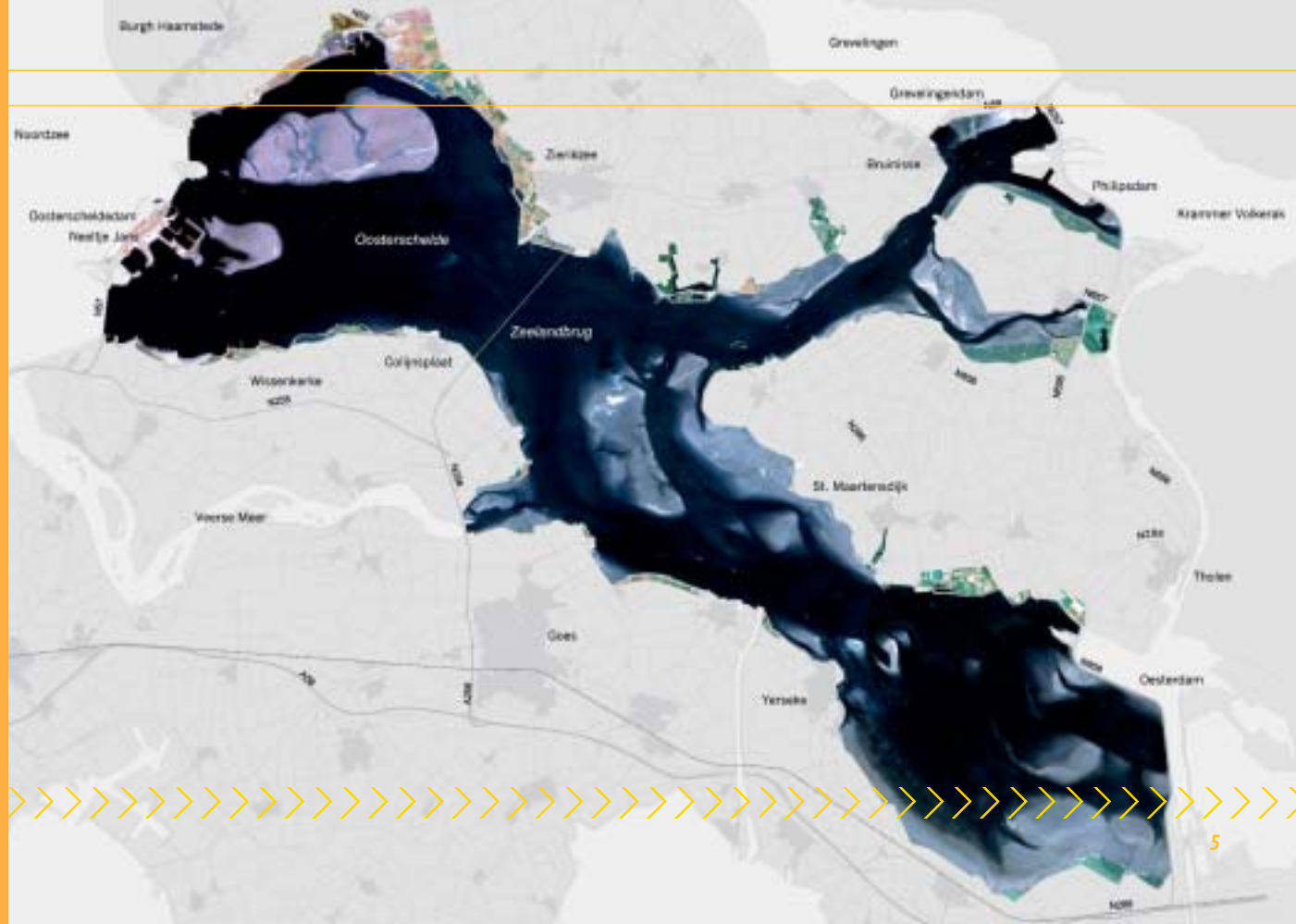
salt water with the peripheral areas just behind the dikes. In the water there are mud flats, salt meadows, gullies and shoals. It is an internationally recognised wetland, a service station for migrating birds on their way from the far north of Europe and Siberia to wintering sites in distant Africa. There are regular sightings of seals and porpoises.

The Oosterschelde also has a fascinating history. It is rich not only in natural history, but also in heritage. It is the site of battles between man and nature. Land was lost and land was reclaimed. Villages disappeared forever beneath the waves, shallow lagoons (inlagen) were created. Dikes, dams and the Oosterschelde storm surge barrier protect the hinterland, but still allow for tidal movement.

The park is there for you. Situated in the heart of the Delta in the province of Zeeland. You don't need an appointment and you are more than welcome.

We do of course ask that you take care in the national park. Although it can cope with a little wear and tear, the area has a precariously balanced ecosystem.





## Once upon a time .....

Around 7,500 years ago the Schelde flowed north from Flanders and emptied into the Maas. It flowed between the Rilland and Brabant shores by Bergen op Zoom through an elongated marsh and peat bog. In the west, the area was protected from the sea by a long series of dunes.

As the water level rose, the area was submerged, and a link was formed between the Schelde and the North Sea. The Oosterschelde was born.

Later, in Roman times, the sea also broke through the dunes in the south, creating the Westerschelde.

Initially few people lived in the area, but that changed around the first millennium. The growing population needed food. The people built dikes round the mature salt meadows, and turned them into farmland. Land was reclaimed. However, the dikes often offered precious little protection against the water. Much of the land which had been wrested from the sea had later to



be abandoned. Particularly in the fifteenth and sixteenth centuries, an enormous amount of land was lost for good.

The sea also took its toll last century. Over 1800 people drowned in the floods of 1953. That disaster provided the necessary impetus for accelerated implementation of the Delta Plan. According to the 1958 Plan, the sea estuaries were to be dammed up to protect the land. The Oosterschelde too was scheduled to be permanently severed from the North Sea in 1978. Then the protests began. Many people were concerned about the rich environment,

wildlife and shellfish cultures which would be lost if the Oosterschelde were cut off from the tides. Finally the government decided to build an 'open' dam: a storm surge barrier. This ensures safety in emergencies, but otherwise allows the tide to flow normally. The Oosterschelde dam was opened in 1986.

The Oosterschelde was designated as a National Park on 8th May 2002.



## Outside the dikes

### ***Salt water and tides***

There's no getting away from it, the most important element in the National park is water: salt water. Ebb and high tide carry eutrophic water to and from the North Sea. It forms the basis for all the life in the Oosterschelde.

### ***Changes***

Less water now flows in and out of the Oosterschelde because of the storm surge barrier. This could have reduced the tidal range - the difference between high and low water - to a point at which shellfish could not be cultivated. To prevent this, compartmentalisation dams, the Oester and Philips dams, were built on the eastern

side of the Oosterschelde. As a result the tidal range at Yerseke was only reduced from around 3.40 m to around 3.25 m. It also created a non-tidal link between Antwerp and Rotterdam and new fresh water lakes in Noord-Brabant. The water in de Oosterschelde is now also clearer than before the construction of the dam.



Solar eclipse on island Neeltje Jans

*Salt meadow in bloom: sea lavender*



## Mud flats, shoals and salt meadows

Mud flats and shoals are areas which are submerged by every high tide and exposed again by the ebb. The mud flats border the dike and the exposed shoals lie like islands in the water. Together with the parts of the dike which emerge at low tide, they form the intertidal areas: i.e. the areas which lie between the tides.

The bed of the mud flats and shoals is teeming with life. Cockles, rag worms, clams, and around 250 other species can be found in their millions in the mud. At high tide they filter plankton out of the water. At low tide they bury themselves deep down for safety. This does not guarantee survival. At low tide the shoals and even more the mud flats provide a lavish banquet for thousands of birds. And at high tide, when these areas are largely under water, they are a source of food for larger bottom dwellers and fish. The birds retreat to high tide roosts to keep their feathers dry.

Like the mud flats, the salt meadows border the dike. Over time these get banked up higher and higher until eventually they are only submerged by spring tides. The salt meadow is criss-crossed with gullies, allowing the salt water to penetrate deep into the meadow at every tide. The salt meadows are colonised by salt-loving plants, or rather plants which have learned to live with salt water (halophytes). Because the plants themselves retain extra mud, they play an important role in the steadily rising level of the salt meadow. Thus the

plant growth can indicate how long the meadow has been established. *Spartina* grass and *salicornia* can be seen on young salt meadows, and sea purslane and sea wormwood on the higher, i.e. older, ones. Some halophytes, such as marsh samphire (*salicornia*) and sea lavender are eaten for their salty flavour: Many birds use the salt meadows as high tide roosts. Other coastal birds such as terns and plovers even use them as breeding grounds. Still other birds which use the salt meadows for foraging or feeding.



*Salt meadow pattern*

## The dikes

For centuries people have built dikes and dams to defend themselves against the sea. Originally they were made of sand and clay, but nowadays they are reinforced with stone, basalt piles and/or concrete blocks. This covering makes the dikes into artificial rocky coasts. Between the stones plants and animals find shelter, food and a place to cling to in the current.

The Oosterschelde is noted for the many sea anemones and sea squirts which benefit from this hard material.

The plants and animals have adapted to the extreme conditions in the Oosterschelde. At low tide parts of the dike emerge from the water. The flora and fauna which have attached themselves to the dike are then exposed to the sun and rain. The acorn barnacle is a good example. It closes up entirely at low tide to prevent dehydration.

In places where the dikes were breached in 1953 there are now rough but attractive

*Dike with cyclists*



nature areas, such as the coves at Ouwerkerk and de Schelphoek.

## The Oosterschelde inside the dike

*Koudekerkse Inlaag*



### ***Karrevelden and inlagen***

In the old days when the dikes were no longer proof against storms, the Zeelanders reinforced them with clay from the area behind the dike. They transported the clay in carts and named the dug-out areas karrevelden (cart fields).

It was not only storms which beset the dikes. Sometimes deep gullies penetrated ever closer to a dike. At extremely low tides such dikes would literally fall into the water: a dike collapse. It could not be prevented and the people had no option but to make a new dike behind the threatened dike before it collapsed. For this they used the clay from the area between the old and new dikes: the inlaag.

The karrevelden and inlagen are now important nature reserves. Seepage water which flows under the dike makes most areas saline. In these areas



you find the same plants and many of the same birds as on the salt meadow. But there are also freshwater inlagen with many reeds and orchids, and birds such as bluethroats and bitterns.

## Nature development

The Oosterschelde barrier dam and the compartmentalisation dams were built to guarantee safety and to conserve nature values. However the Delta Works are putting pressure on the natural environment. The reduction in the tidal range, means that there is less intertidal area and, in the east the Oesterdam and the Philipsdam have severed large areas of salt meadow and mud flat from the Oosterschelde.



This led to the loss of significant foraging areas for wading birds and habitats for halophytes. These developments led the Zeeland Environmental Federation to draw up a nature development plan of unprecedented scale for the Oosterschelde: the Tureluur Plan named after the common bird Redshank. The plan covers 44 areas,

mainly within the dikes. Flora and fauna which are under pressure outside the dikes can find extra habitats inside them. When it was presented in 1991 the plan was greeted with scepticism. Now, a good ten years later, the general response is enthusiasm. Thanks to the efforts and attitude of Zeeland Provincial Council, the Directorate-General for Public Works and Water Management, the farmers and estate managers, among others, half of the surface area of the Tureluur Plan has already been created or is under development. And with results: large groups of birds form clouds above the south coast of Schouwen and geese overwinter in great numbers on the Van Haaften polder on Tholen. Brackish marshes have developed with a natural water level: high in winter and lower in summer. Large numbers of avocets, plovers and terns breed on the bare areas which emerge from the water in spring, The higher-lying places with slightly fresher water turn into suitable areas for birds such

*Nature development in Van Haaftenpolder*



as spoonbills and marsh harriers. Dunes have now formed on the artificial island, Neeltje Jans. All this is seen as compensation for the areas of nature lost due to the implementation of the Oosterschelde works. The new nature areas have a strong ecological relationship with the Oosterschelde. For this reason areas bordering on the sea dike are included within the boundaries of the National Park.

## What lives and grows here?

The Oosterschelde is a home, a winter sanctuary, nursery and service area for hundreds of species of plants and animals.

### ***Birds***

The Oosterschelde is the second most important bird reserve in the Netherlands. It is designated as a site of international interest for 19 species. At times there can be more than 1% of the Eastern Atlantic population of these species in the National Park. These include the avocet, the oystercatcher and the ringed plover.

### ***Marine mammals***

The number of seals in the National Park varies, as they can swim in and out of the Oosterschelde through the barrier dam. Their numbers vary around 20.

The tides determine the seals' pace of life. At high tide they hunt for fish and are quick and manoeuvrable in the water. At low tide they rest on the shoals. Here their

movements are slow and ungainly: reason enough for them to disappear into the water at the least sign of danger.

The Oosterschelde also boasts porpoises, the smallest species of dolphin. They live in small groups of 3 to 6 animals. They are quiet, unremarkable animals - usually the dorsal fins is the most you will see of them.

### ***Underwater fauna***

The National Park is renowned among divers for its unusual and colourful underwater life. Hundreds of species of flora and fauna have found a place to settle in the mud and on the dikes and piles. There are also around 74 species of fish. A number of bottom dwellers and fish such as mussels, oysters, crabs and eels are also suitable for consumption.

### ***Plants***

The plants in the salt meadows and inlagen have adapted to salt water conditions. They

attempt to minimise evaporation to reduce their water intake. They have thick, fleshy leaves like the sea lavender or have a grey-green colouring like the sea wormwood. Other plants, like the sea arrowgrass, have found a way to expel superfluous salt.



## Human activity

The Oosterschelde is there for nature and for people, who can use it for work, recreation and education.

### **Fisheries**

After nature, fisheries are the most important function of the Oosterschelde. The most famous are the shellfish farms around Yerseke. The "Zeeland" mussels actually come from the Wadden Sea. They are fished from the Wadden Sea and set out on beds in the Oosterschelde. Oysters are also taken as larvae and sown on oyster beds to grow on. The beds can be recognised by the stakes (tree branches) in the water. Cockle fishing is more contentious. Fishermen and conservationists argue about whether nature can recover sufficiently from the effects of mechanised cockle fishing. For the time being cockle fishing is still allowed in the Oosterschelde, but a certain volume of food is reserved for the birds which live off cockles. Every year the Minister of

Mussel



Anchovy fishermen



Agriculture, Nature and Food Quality determines the tonnage of cockles that is allowed to be fished.

### ***Recreation and information***

The National Park provides plenty of scope for recreational activities such as sailing, fishing, diving, cycling and bird-watching. An access order regulates what activities are allowed, and where and when. It stipulates which areas are not accessible during a certain period, or not at all. These areas include bird breeding grounds, high tide roosts and shoals where seals rest. Licences are required for digging for worms or harvesting sea vegetables. Activities such as water-skiing and jet-skiing are not appropriate here, as they cause undue harm to the flora and fauna, as well as nuisance to other people.

There are leisure facilities all over the park, including footpaths and cycles paths, hides and boat ramps. Notices provide

information about the special features of the Park and how best to enjoy them. Excursions are run by various organisations, including boat trips. Teaching packs and programmes are available for schools and youth groups.

## What next?

The advent of the National Park does not mean that the Oosterschelde will be fenced off. However, agreements have been made and work is underway to preserve the area for future generations.

The Consultative Body on the Oosterschelde National Park is responsible for this. All the concerning parties are represented: local authorities, estate managers and the nature, fishing, recreation and education sectors. A management and regional planning programme has been drawn up under the direction of an independent chairman. This outlines the desired developments, agreements and action to be taken. It covers nature, fishing, recreation, information, interpretation and education and research.

### ***Preserving and strengthening nature values***

The natural processes and dynamics in the National Park are taken as the point of

departure. Intervention can only be permitted in the most extreme circumstances.

Due to the barrier dam less water now flows in and out of the Oosterschelde. As a result the gullies are now too large. They are 'hungry for sand' and 'consume' mud flats, shoals and salt meadows, which are now in danger of disappearing, taking with them so much of what makes the Oosterschelde so unique. This demands a structural solution, but what kind? This is now being examined. To ensure all is not lost before a solution is found, efforts are already being made, for example, to protect the salt meadows. Of course this is not the first time man has intervened in the Oosterschelde. Solid dikes separate the inner and outer areas, and we are now considering how to restore the relationship between the two. One possibility is to put in seepage pipes without weakening the dikes.



Rivers no longer flow into the Oosterschelde. It is no longer an estuary, and there are no longer any areas of brackish water. An integral project for the whole Delta, 'Delta Insight' is examining how to restore the estuarine character, for example by creating a culvert for fresh water in the Ooster- or Philips dam.

### ***Fishing interests***

Often the interests of nature and fisheries go hand in hand – for example in the case of good water quality and a sound ecosystem. However, when there are conflicts of interest, agreements are made, as in the case of food reserves for birds. Within the fisheries sector itself there are also increasing calls for sustainable fishing and there is a large amount of self-regulation. The idea is to combine nature reserves and fishing in the park. Fisheries policy however is determined nationally, of course, and not by the Consultative Body.

### ***Nature-centred recreation***

The National Park is still a place of recreation. The Consultative Body is not concerned to attract more people to spend leisure time in the park. However, it does try to offer opportunities to those who do visit to consciously appreciate the special natural features, the history of the



landscape and to promote nature-centred recreation. It constantly looks for ways of achieving this without causing essential damage to the flora and fauna. For example, bird watching hides and footpaths are provided. The existing access regulations are being evaluated and a number of changes have been proposed. Mostly these relate to relaxing the rules for access, and only one relates to tightening them. Now, in July 2004, we must await implementation by the Ministry of Agriculture, Nature and Food Quality. In 1995 agreements were reached about increasing the number of berths and expanding leisure accommodation. This policy is being extended.



### ***Public information and education***

People enjoy things more if they know where to look. Also, most rules are broken not out of malice but out of ignorance. These are just two reasons to provide information and education. Often this is combined with nature-centred recreation, for example the plotting of nature trails. The National Park aims to provide a series of excellent facilities and activities in and around the Oosterschelde. In so doing it links into existing facilities and activities. To find out what there is to do here, see the website: [www.npoosterschelde.nl](http://www.npoosterschelde.nl).



## Information about the National Park

*For further and updated information please go to our website at: [www.npoosterschelde.nl](http://www.npoosterschelde.nl)*

### **Oosterschelde National Park Secretariat**

Postbus 165

4430 AD Middelburg

Tel. 0 118 631 793

Fax 0 118 634 756

Mail [np.oosterschelde@zeeland.nl](mailto:np.oosterschelde@zeeland.nl)

Site [www.npoosterschelde.nl](http://www.npoosterschelde.nl)

### **Education and Information Co-ordinator,**

#### **Oosterschelde National Park :**

p.a. IVN consulentenschap Zeeland

Ravelijn de Groene Jager 5

Postbus 334

4460 AS Goes

Tel. 0113 211 675

Fax 0113 250 955

Mail [np.oosterschelde@ivn.nl](mailto:np.oosterschelde@ivn.nl)

Site [www.npoosterschelde.nl](http://www.npoosterschelde.nl)

### **Management, Oosterschelde National Park :**

#### **Vereniging Natuurmonumenten (Society for the Preservation of Natural Monuments in the Netherlands)**

Noordereinde 60

Postbus 9955

1243 ZS 's Graveland

Tel. 035 655 99 11

Mail [info@natuurmonumenten.nl](mailto:info@natuurmonumenten.nl)

Site [www.natuurmonumenten.nl](http://www.natuurmonumenten.nl)

### **Stichting Het Zeeuwse Landschap (Zeeland Landscape Foundation)**

Postbus 25

4450 AA Heinkenszand

Tel. 0113 569 110

Mail [info@hetzeeuwselandschap.nl](mailto:info@hetzeeuwselandschap.nl)

Site [www.hetzeeuwselandschap.nl](http://www.hetzeeuwselandschap.nl)

### **Staatsbosbeheer (State Forest Service)**

Princenhof Park 1

Postbus 1300

3970 BH Driebergen

Tel. 030 69 26 111

Mail [info@staatsbosbeheer.nl](mailto:info@staatsbosbeheer.nl)

Site [www.staatsbosbeheer.nl](http://www.staatsbosbeheer.nl)

### **The Oosterschelde National Park Consultative**

#### **Body consists of:**

- Independent chair
- State Property Dept., South
- Ministry of Agriculture, Nature and Food Quality, SW Region

- Public Works and Water Management, Zeeland Region
  - Zeeland Provincial Council
  - Zeeland Islands Water Board
  - Goes Municipal Council
  - Kapelle Municipal Council
  - Noord-Beveland Municipal Council
  - Reimerswaal Municipal Council
  - Schouwen-Duiveland Municipal Council
  - Tholen Municipal Council
  - Veere Municipal Council
  - Staatsbosbeheer (State Forest Service)
  - Stichting Het Zeeuwse Landschap (Zeeland Landscape Foundation)
  - Vereniging Natuurmonumenten (Society for the Preservation of Natural Monuments in the Netherlands)
  - Delta Consultation Body (representative for recreation)
  - Productschap Vis (Fish Marketing Board)
  - Breed Overleg Deltawateren (Greater Consultative Council on the Delta Waters)
  - IVN Consulentenschap Zeeland
  - Owners' representative
- Secretariat: Zeeland Provincial Council  
Information and education: IVN Consulentenschap Zeeland (Association for Environmental Education)

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