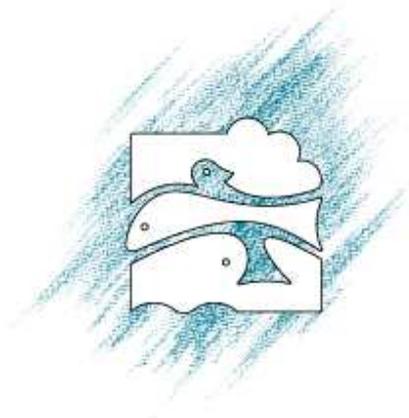


ADVIES VAN HET INSTITUUT VOOR NATUURBEHOUD A.2002.152



Typology of the Flandrian transitional waters for the Water Framework Directive (2000/60/EC)

Number : IN.A.2002.152
Date : 12 – juli – 2002
Authors: Erika Van den Bergh
Correspond to: Erika Van den Bergh
Addressee : Haythornthwaite, Julia [Julia.Haythornthwaite@doeni.gov.uk]
Section : Environment and Heritage Service
Calvert House
23 Castle Place
BELFAST BT1 1FY

Number of pages: 5

Basin of the IJzer

The total surface of the considered basin is 1.365 km². The river basin of the IJzer amounts to 1.092 km². 714 km² (65 %) of this area is situated in Flanders, 381 km² (35 %) in France.

Eastern Schelde (Netherlands)

On 4 October 1986, the storm surge barrier on the Eastern Schelde was officially established. The Eastern Schelde is used for shipping, recreation and fishing

The Veerse Meer (Netherlands)

Brackish lake, separated from the North Sea in 1961,
Importance: recreation and shipping.

The Grevelingenmeer (Netherlands)

Since the construction of the barrages Grevelingendam (1965) and the Brouwersdam (1971), the Grevelingenmeer became a lake.

The Zoommeer and the Eendrachtcanal (Netherlands)

The Zoommeer is part of 2 important shipping routes: the Schelde-Rhine connection and the Rhine and the Western Schelde and the Canal Gent-Terneuzen.

The AA delta (France)

The surface of this basin is 398 km².

The Audormois (France)

A small but ecological very important sub basin in the North of France.

The Boullonnais (France)

The Canche (France)

The surface of this basin is 1.274 km².

The Authie (France)

The surface of this basin is 984 km².

The Somme (France)

The surface of this basin is 6.000 km². It consists of 2 sub basins: the Haute Somme and the Somme Aval. Characteristic for the Haute Somme is the large number of lakes.

3. Identification of transitional waters

In Flanders 3 transitional waters are identified:

- *The Zeeschelde and its tributaries Durme, Rupel, Dijle, Zenne, and Grote Nete and Kleine Nete.* (The Schelde estuary on Dutch ground is called the Westerschelde, on Flemish ground it is called the Zeeschelde (Fig. 2). The Schelde estuary has complete and uninterrupted salinity and tidal ranges. The Flemish part ranges from fresh to mesohaline (salinity), from 0 to 6,5 m (mean spring tidal range).

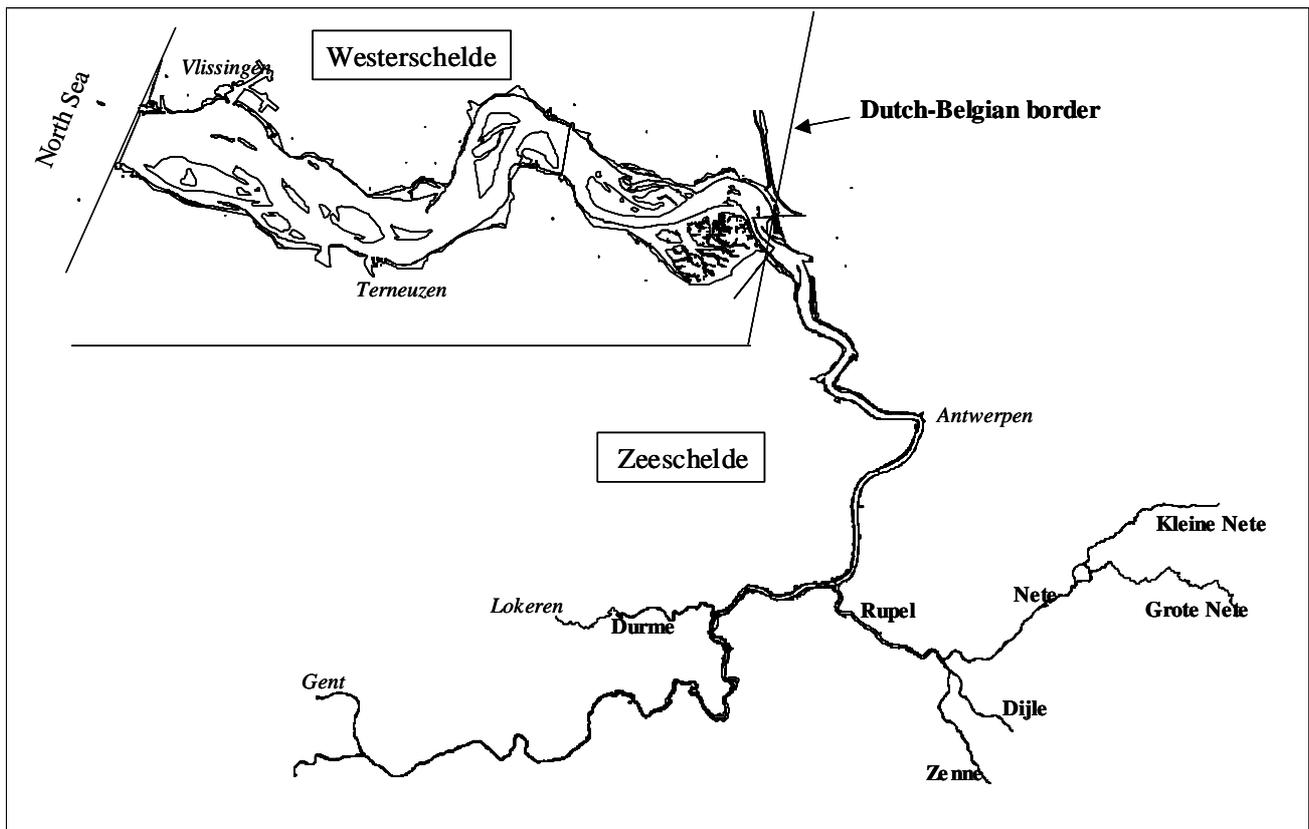


Fig. 2 The Schelde estuary and its tributaries in Flanders.

- *The IJzer estuary*: which is completely on Flemish territory. Only a few km upstream tidal influence is stopped by a sluice complex. The estuary is situated in the polyhaline zone, mean spring tidal range is about 4m.
- *The Zwin* is a silted and partly impounded former sea arm (1,5ha surface area). The fresh water influence is restricted to the precipitation in the area. The contact between the North Sea and the intertidal area is now restricted to a narrow gap, an artificial channel between the dunes. Tidal inundation only takes place at spring tides. According to the definitions in the guidance it should be categorised as a coastal water. However, in Belgium the implementation of the WFD for coastal waters is a federal responsibility whilst transitional waters are the responsibility of the Flemish region. The Zwin is a Flemish Nature reserve, managed by the regional Flemish government. Therefore it is provisionally categorised under transitional waters.

4. Defining seaward boundaries

- *The Schelde estuary* has its seaward boundary in the Netherlands and it is beyond the Flemish responsibility to define this boundary. On Flemish territory the seaward boundary for the Schelde estuary is on the Dutch-Belgian border, in the mesohaline part of the estuary.
- *The IJzer estuary*: The seaward boundary of the IJzer is the 90% isohaline as compared to the North Sea salinity.
- *The Zwin*: a physiographic feature, the breach through the dunes was taken as the seaward boundary for the Zwin.

5. Defining landward boundaries

For all Flandrian transitional waters the tidal limit was taken as the landward boundary. In most cases this coincides with defined infrastructure elements in the vicinity of the upstream limit of the horizontal tide.

- *The Schelde estuary*: For the main river the landward boundary is the sluice complex in Ghent.
 - *Durme*: the weir at Lokeren
 - *Kleine Nete*: the watermill at Grobbendonk
 - *Grote Nete*: the bridge at Itegem
 - *Dijle*: the bridge at Haacht
- *The IJzer estuary*: The tidal influence on the IJzer is stopped at the sluice complex ‘the Ganzepoot’
- *The Zwin*: the inland boundary is the boundary of the tidal marshes, which coincides with the limits of the Flemish Nature reserve.

6. Typology of the transitional waters

Flandrian transitional water bodies were typed according to system B as proposed in the COAST guidance.

Salinity range, tidal range and the gradients they bring about along an estuary are the very characterising aspects of the estuarine ecosystem. Therefore, the complete estuary is considered as one water body, including the full salinity and tidal ranges present.

Table 1. Typing of Flandrian transitional water bodies.

	Discriminant	<i>Schelde</i>	<i>IJzer</i>	<i>Zwin</i>
OBLIGATORY FACTORS				
Longitude/Latitude		Atlantic/North Sea Ecoregion		
Tidal range	X	Macrotidal	Mesotidal	
Salinity range		Fresh-Mesohaline	Polyhaline	
OPTIONAL FACTORS				
Mixing		Fully mixed		
Intertidal area	X	< 50 %		> 50 %
Type		<i>Macrotidal lowland estuary</i>	<i>Mesotidal lowland estuary</i>	<i>Coastal lagoon or intermittent estuary?</i>

Note: The ecological relevance of the difference in tidal range between the Schelde and the IJzer is relatively small, they are just on both sides of the threshold value between macro and mesotidal. In reality they both represent different salinity ranges of a typical lowland estuary.