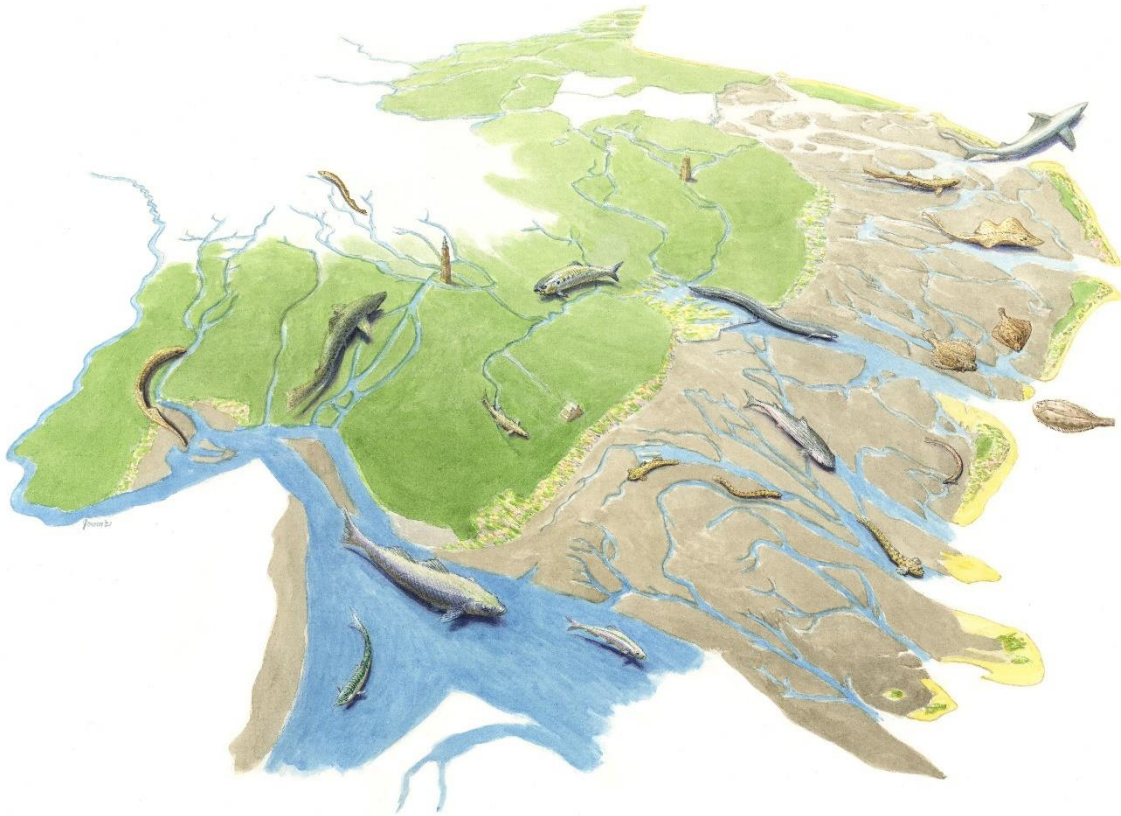


# Wadden Sea & Inland Waters Swimway (Swimway Wadden & Achterland)

Working together to create a Wadden Sea area that is teeming with fish



## Contents

<b>SUMMARY .....</b>	<b>3</b>
<b>1. Introduction.....</b>	<b>4</b>
1.1 Background.....	4
1.2 What is a 'Swimway'? .....	4
1.3 The importance of cooperation to the Wadden Sea Swimway .....	5
1.4 Objective of the Wadden Sea & Inland Waters Swimway .....	6
1.5 The parties involved and the process completed .....	7
1.6 Structure of the document.....	7
<b>2. The story behind the Wadden &amp; Inland Waters Swimway .....</b>	<b>8</b>
2.1 The Wadden Sea area.....	8
2.2 Historical perspective and developments .....	10
2.3 Fish guilds & target species of the Wadden Sea Swimway .....	13
2.4 Wadden Sea & Inland Waters Swimway .....	15
<b>3. Cooperation and working method .....</b>	<b>18</b>
3.1 Existing roles and responsibilities .....	18
3.2 The transboundary cooperation required.....	19
3.3 The working method: the life-cycle approach .....	19
3.4 Relationship with other programmes .....	21
<b>4. Ongoing programmes and projects.....</b>	<b>23</b>
4.1 Overview of projects and programmes for fish in the Wadden Sea area .....	23
4.2 Points to note for the future .....	24
<b>5. Working towards an action plan for the Wadden Sea &amp; Inland Waters Swimway .....</b>	<b>26</b>
APPENDIX 1 Relationship with existing policy.....	31
APPENDIX 2 Overview of ongoing programmes and projects .....	<b>Fout! Bladwijzer niet gedefinieerd.</b>

## SUMMARY

Fish require access to different types of habitat in order to complete their life cycle. The distance they travel between those habitats ranges from between a few hundred metres to hundreds of kilometres. Some of those fish also move from fresh to salt water and back again. 'Swimway' is one word used to describe the critical habitats in their entirety and the connections between them.

During their migration, fish do not stick to the borders we humans have created, be they borders between countries, provinces, water authorities or management areas. However, these human borders can have an impact on the successful completion of their life cycle. Where the life cycle of a fish species extends over more than one management area, it is important that joint efforts are made to ensure the conservation or restoration of that particular species.

The Wadden Sea is an important habitat and feeding ground for various fish species. Some live there permanently, other marine species use it as feeding and rearing ground, while others use it as a transit route between fresh and salt water. However, those species depend on suitable habitats and the connections between them. The Wadden Sea area stretches along the coast of the Netherlands, Germany and Denmark. Cross-border agreements have been made within the 'Trilateral Wadden Sea Swimway Cooperation' so that we can join forces and work effectively on the restoration of fish populations in the Wadden Sea. Each country is working on the implementation and translation into action of those agreements within their national borders.

The Wadden Sea & Inland Waters Swimway implements some of those agreements in the Netherlands. It tells the story of how fish use the Wadden Sea and the coasts in the Wadden Sea region and, in the case of several species, the inland freshwater as well, to complete their life cycle. Using the life cycle-based approach, the parties involved intend to work together on the restoration of fish populations in the entire Wadden Sea area. This will involve cooperation across the various borders because, ultimately, it will not be possible to achieve the policy objectives for the restoration of fish populations until the swimway is fit for purpose. Cooperation is therefore a necessity if we are each to realise our objectives.

To ensure that we make a good start, this report includes an inventory of ongoing projects and programmes and an analysis of the focus and core issues for the future. This has been discussed in several working sessions, some of which took place online, involving a broad group of stakeholders, who also shared their experiences and requirements regarding the implementation of the Wadden Sea & Inland Waters Swimway. All this resulted in a list of core issues and building blocks for the future.

The Wadden Sea & Inland Waters Swimway will act as an umbrella that connects the efforts being made with regard to fish in Northern Netherlands. Using this unifying story and linking measures and efforts, the focus will be on ensuring the effective restoration of fish populations. We will work together to achieve a shared ambition: A Wadden Sea area teeming with fish.

# 1. Introduction

## 1.1 Background

The Wadden Sea is a unique nature conservation area and a UNESCO World Heritage Site. As a shallow coastal sea, with tidal flats in some areas, it is an important habitat and feeding ground for many protected animal and plant species and an essential nursery for aquatic species groups, including fish. The area also faces many challenges; the disappearance and degradation of habitat and the connectivity between habitats mean that many species are under pressure. For the fish in the area, this means that many populations have fallen sharply in number.

The Wadden Sea area stretches along the coast of the Netherlands, Germany and Denmark. It is an interrelated ecosystem that extends across national borders. It is important that we join forces and make agreements on management if we are to ensure the sustainable management and restoration of fish populations. This has prompted the three countries to organise the 'Trilateral Swimway Waddensea' joint programme whose focus is on the restoration of fish populations in the Wadden Sea area. This collaboration on the Swimway was laid down in the Leeuwarden Declaration 2018 and signed by the responsible ministers of the three countries. The three countries jointly agreed to focus on the following five objectives:

1. Robust and viable populations of estuarine resident fish species;
2. The nursery function of the Wadden Sea and estuaries;
3. The quality and quantity of typical Wadden Sea habitats;
4. Passageways for diadromous fish migrating between the Wadden Sea and inland waters;
5. Conservation of endangered fish species.

With these objectives, the broad focus is in the restoration of fish species occurring in the Wadden Sea. These objectives were fleshed out into four pillars within the aforementioned programme;

- Pillar 1 Research and monitoring;
- Pillar 2 Policy;
- Pillar 3 Measures, including development measures;
- Pillar 4 Stakeholder involvement, education & communication.

The idea is that the countries will work on the task separately using these work packages. The Wadden Sea & Inland Waters Swimway, presented in this report, fulfils the Dutch part of (primarily) work package 4 and forms the framework for the implementation of the other three work packages. This facilitates an area-focused approach and cross-border cooperation, which will ensure the successful restoration of fish populations.

## 1.2 What is a 'Swimway'?

To explain this properly, we should first consider birds. Many bird species overwinter in Southern Europe and Africa in the winter months. Large groups of birds move north, deep into Northern Europe, Scandinavia and Northern Asia in the spring. During these migrations, many bird species follow the same routes, visiting important feeding and resting sites during their migration. These fixed routes are also known as 'flyways'. The Netherlands, for instance, is part of the East Atlantic flyway.

### ***The life-cycle approach***

The same applies to fish. For many fish species, the various stages of life require different types of underwater habitat, such as spawning grounds, rearing areas, feeding grounds and habitats. The open sea provides lots of space and food for adult fish, but little shelter and food for juveniles. This is why many fish species seek shallow water in which to reproduce, such as the Wadden Sea, the

estuaries or even the freshwater of the inland waters. This shallow water warms up faster in the spring, provides much structure and many hiding places, and enjoys high productivity, meaning that there is enough food for the young fish to feed on as well. Freshwater-salt water transitional zones also provide young, growing fish with these qualities and more room in which to grow. Many of the

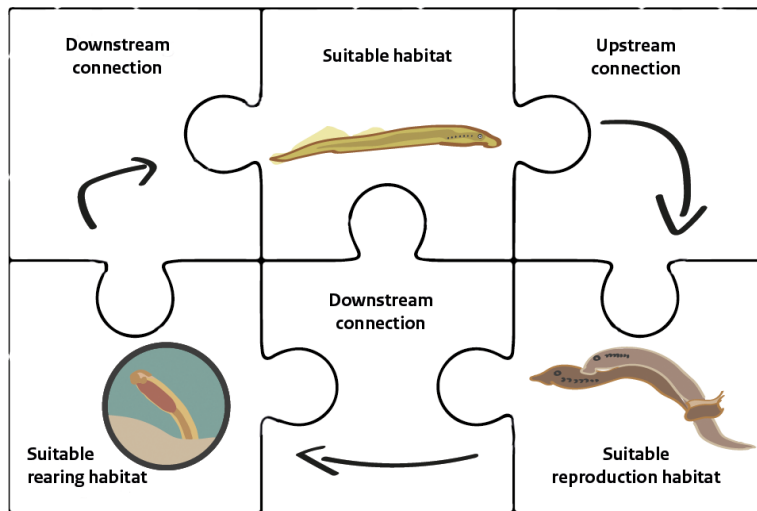


Figure 1. The various 'pieces of the puzzle' in the river lamprey's life cycle together form the Swimway for this species.

adult fish will eventually move to deeper water, enabling them to evade predators, find partners in order to spawn and take advantage of other food sources.

All those functional habitats and the routes that connect them are therefore necessary if fish are to complete their life cycles and are the pieces of the puzzle that, when put together, form the completed puzzle (Figure 1). For some species, the spawning, rearing and feeding sites will be several dozen to hundreds of metres away. Other species, such as the salmon, river lamprey and the eel, swim many hundreds to thousands of kilometres to complete their life cycles. The route they take and the connecting functional habitats are known as a Swimway.

### 1.3 The importance of cooperation to the Wadden Sea Swimway

The Wadden Sea area, including the connections to the North Sea, inland freshwater and brackish transitional zones, is therefore one large habitat for fish. For humans, however, it is an area with many individual pieces of a puzzle when it comes to statutory responsibilities, scientific knowledge, management and physical measures. Area managers, such as the Directorate-General for Public Works and Water Management and water authorities, operate on the basis of different policy frameworks, including the Water Framework Directive (WFD), Natura 2000 and the Programme-Based Approach to Large Bodies of Water (PAGW). Based on those policy frameworks, a manager will work on various fish targets within its management area. However, the swimway approach shows that it will not be possible to restore the population of a fish species until the entire life cycle has been catered for.

Fish do not respect the boundaries that we as humans use. Their habitats and migration routes ignore our national borders, provincial borders or the water authorities' borders. The Wadden Sea area as a habitat for fish is greater than the Wadden Sea alone: a rain drop falling in Assen will eventually flow into the Wadden Sea via a stream and a waterway. For a migratory fish like the river lamprey, which needs both freshwater and salt water to complete its life cycle, the stream in Assen is just as important as the Wadden Sea. That said, fish species which spend their lives in the Wadden

Sea, on the seabed, in the water column or in brackish estuaries such as the Ems-Dollard, also need a variety of habitats. The size of suitable habitat available, food supply and the degree of human disturbance will determine the incidence of such fish. Within the Wadden Sea, on its borders and the immediately adjacent North Sea and Ems-Dollard, habitats must be fit for purpose and connected.

*'The managers work independently of each other on achieving the individual policy objectives for fish because restoration of the population will not be possible until the entire swimway is fit for purpose'.*

The starting point, then, is the recognition that the managers are dependent on each other to achieve the individual policy objectives for fish. Regardless of whether they are the WFD or Natura 2000 goals or another policy framework relating to fish, these objectives will be successfully achieved only when the entire Wadden Sea & Inland Swimway has been restored. The protection and restoration of these fish populations therefore requires cooperation between the various managers situated within this swimway.

#### 1.4 Objective of the Wadden Sea & Inland Waters Swimway

The main objective of the cooperation taking place within the Wadden Sea & Inland Waters Swimway is to establish robust fish populations in the Wadden Sea area, i.e. both in the Wadden Sea and in the connected estuaries and freshwater bodies. The challenge lies in putting together the pieces of the puzzle and that will require effective cooperation between the various area partners. An area without borders, connected by the fish, with a single objective: a Wadden Sea area teeming with fish.

The restoration of these fish populations will be achieved by, among other things, developing habitats, removing fish migration barriers and reducing other negative effects, including pollution and disruption. This will require a huge collaborative effort on the part of the various water and area managers and other stakeholders. For this reason, the Wadden Sea & Inland Waters Swimway will focus primarily on:

- Strengthening cooperation between a variety of organisations (government agencies, research and, education institutions, social organisations and companies) that are involved in the protection and restoration of the fish populations in the Wadden Sea area;
- Coordinating the various activities/projects to be implemented and thus increasing efficiency or synergy;
- Sharing knowledge and inspiration with each other on policy, management, measures, research and monitoring;
- Communicating based on a single coherent vision regarding the Wadden Sea & Inland Waters Swimway for all projects aimed at the restoration of fish stocks.

This report identifies and lists areas that are being worked on already and what will be needed in future to ensure healthy fish stocks in the Wadden Sea area. It will provide the impetus for further cooperation between various parties in the Northern Netherlands.

### 1.5 The parties involved and the process completed

The drafting of this Wadden Sea & Inland Waters Swimway report was instigated by Programme for a Healthy Wadden Sea (PRW), the Directorate-General for Public Works and Water Management (RWS) and the Wadden Sea Area Investment Framework (IKW). The report was developed in close collaboration with parties from the area, including water authorities, the Directorate-General for Public Works and Water Management, the provincial authorities, nature conservationists, angling organisations, the Wadden Fund, research institutions and the World Fish Migration Foundation. During two (online) sessions

- an overview of ongoing programmes/projects was prepared;
- an inventory of the requirements and bottlenecks in the present collaborative work was drawn up, and
- a list of priorities for the future was defined.

### 1.6 Structure of the document

In Chapter 2, the Swimway principle is narrowed down to focus on the Wadden Sea area, and there is a description of the area covered by the plan and the target species.

Chapter 3 contains a description of the cooperation and working method required in order to ensure a successful application of the Swimway approach.

Chapter 4 provides an overall picture of current programmes, projects and measures. A list of points to note for the future has been drawn up based on the analysis of that picture.

In Chapter 5, the Wadden Sea and Inland Waters Swimway and the analysis of current activities is translated into several building blocks to be followed up.



## 2. The story behind the Wadden & Inland Waters Swimway

The swimway principle's life-cycle approach challenges us to take a broader look at the restoration of fish populations and the task to be performed by managers in achieving this. In this chapter, we will look at the Wadden Sea area from the perspective of the life-cycle approach with a view to producing an inspiring story and a picture of the Wadden Sea & Inland Waters Swimway. A story that links the efforts of managers and puts them into a broader perspective, i.e. the shared mission: A Wadden Sea area teeming with fish.

### 2.1 The Wadden Sea area

#### **A unique and essential nature conservation area**

The international Wadden Sea is the world's largest unbroken intertidal area where natural processes can take place undisturbed. The Wadden Sea is a shallow coastal sea, or an enclosed sea, which extends 500 kilometres along the Dutch, German and Danish coasts. A large part of the enclosed sea is exposed at low tide, creating an intertidal area of international importance. At low tide, about three quarters of the Wadden Sea, which covers an area of 10,000 km<sup>2</sup>, consists of exposed sandbanks and mudflats. Several rivers, including the Eems, Wezer, Eider and Elbe, flow into the Wadden Sea, providing, in addition to a unique intertidal area, estuarine habitats where there are freshwater-salt water transitional zones. This combination results in an exceptional area with a unique dynamic, flora and fauna of ecological value and an abundance of species. The core values of the area are as follows: vastness, tranquillity, darkness, silence, precious landscapes and cultural heritage (IKW 2019). The Wadden Sea provides space for a great diversity of plant and animal species. In addition to flora and fauna of ecological value, the area is also enormously valuable for recreational and fishing activities.

In 2009, the Wadden Sea was named a UNESCO World Heritage Site in recognition of the following exceptional values:

- A rare dynamic area where the landscape is shaped by wind and tides;
- An ecological system characterised by species adapted to the conditions and with high productivity of biomass;
- Unparalleled biodiversity which is invaluable to global biodiversity.

For many fish and birds the Wadden Sea is of inestimable value and essential to their survival. The migration routes of birds and fish of which the Wadden Sea forms part are global in scale. The eel swims from the Sargasso Sea through the Wadden Sea to the Rhine and back again, while the wader calls in at the Wadden Sea on its great migration from North-West Russia to Mauritania.





Figure 2 Bird's eye view of the UNESCO World Heritage Site, the Wadden Sea (Source: Programme for a Healthy Wadden Sea)

The Wadden Sea is one of the gateways of the Rhine Basin. The Wadden Sea, Wadden coastal zone and the freshwater of the inland waters together form a single functional ecosystem for fish. For some fish species, the Wadden Sea is a connecting zone between open sea and river, while for others it is an area in which to live, feed and/or spawn.

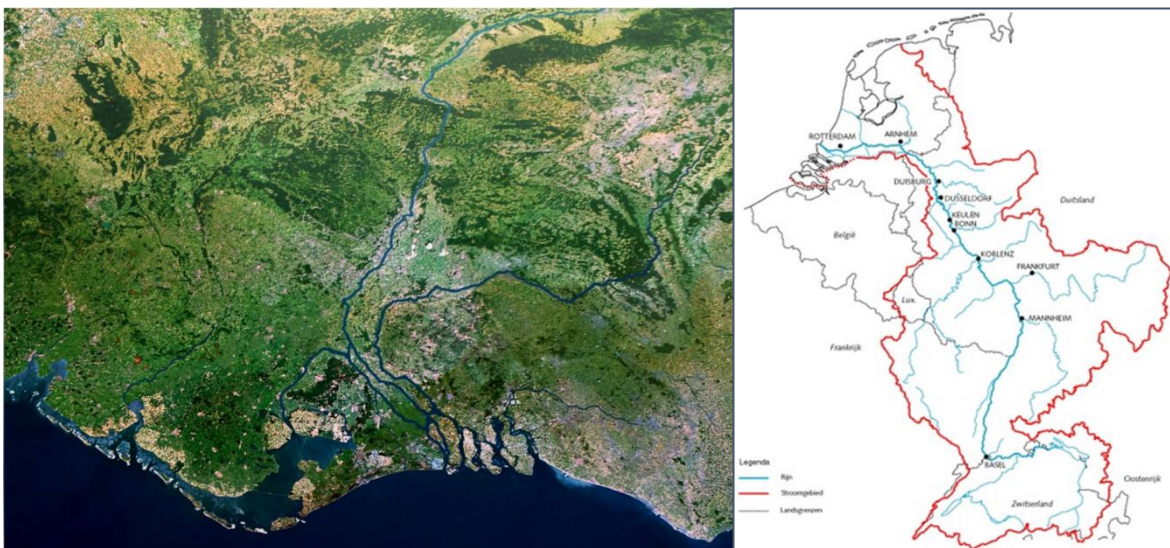


Figure 3 Wadden Sea as one of the gateways of the Rhine Basin.

## 2.2 Historical perspective and developments

At the beginning of the previous century, the Wadden Sea area was not the same area that is now. It was then part of the Zuiderzee, and the seals and herring in it would swim as far as Amsterdam. There was also an open connection between the Lauwersmeer and Amstelmeer, known then as Amsteldiep and Lauwerszee, at that time. The construction of dykes and dams, however, meant that approximately one third of the original intertidal area remained.

When the Afsluitdijk was completed in the early 1930s, the brackish estuaries turned into freshwater lakes and many fish species, including the herring, smelt, shad and anchovy, were no longer able to reach the spawning grounds in the southern part of the Zuiderzee (now Markermeer). It was reported that in the early years a layer of herring roe, several decimetres thick, washed up on the Frisian coast because the herrings had been forced to spawn in areas before the Afsluitdijk (Harlingercourant, 1933). The schools of herring and anchovy disappeared almost entirely from the Wadden Sea in the years that followed.

The Afsluitdijk caused sediment and water flows to change, creating a cascade of ecological effects. The extensive sea-grass fields disappeared completely and with them all the unique species that had lived there. Intensive fishing of the remaining part of the Wadden Sea was also responsible for the disappearance of species such as the flat oyster.

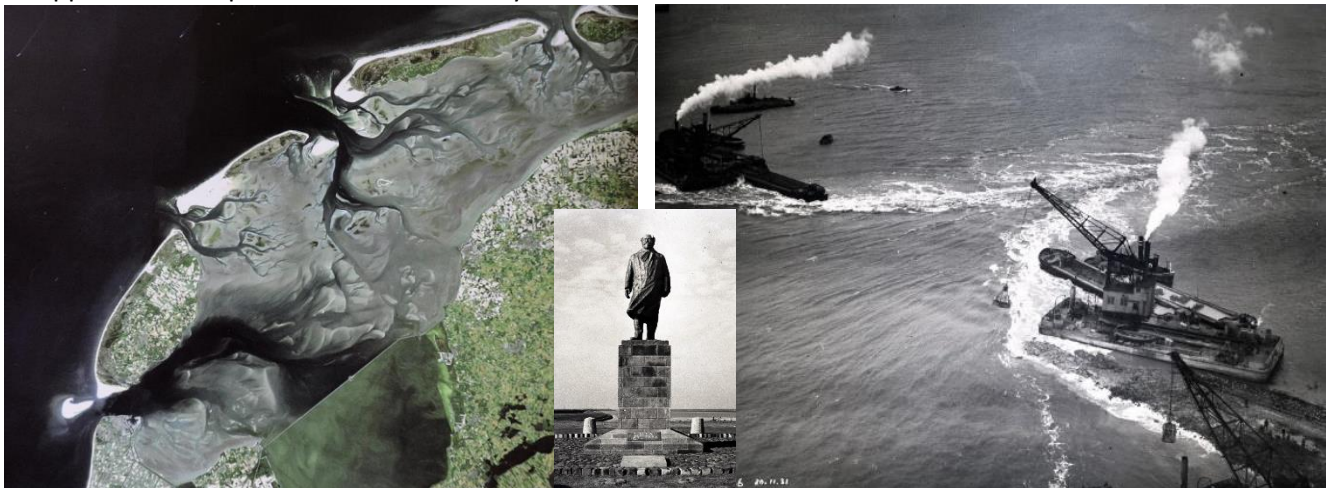


Figure 4 The Afsluitdijk: an icon for water security and an ecological barrier between the Wadden Sea and the IJsselmeer

### Population trends

Expressed in biomass, fish populations in the Wadden Sea area show a strong decline in the eastern and western Wadden Sea (Figure 3). Not only the biomass, but also the average length of the species present has decreased, and the frequency of entry and exit has reduced. For a number of species, such as smelt, the current population is just a fraction of what it was a century ago.

It is not fish alone that are affected: many fish species are also important links in the food pyramid. Fish-eating birds, such as the Eurasian spoonbill and common tern, in particular, are dependent on the number of fish present (smelt, for instance) so there is a direct correlation between populations of fish-eating birds and the fish populations.

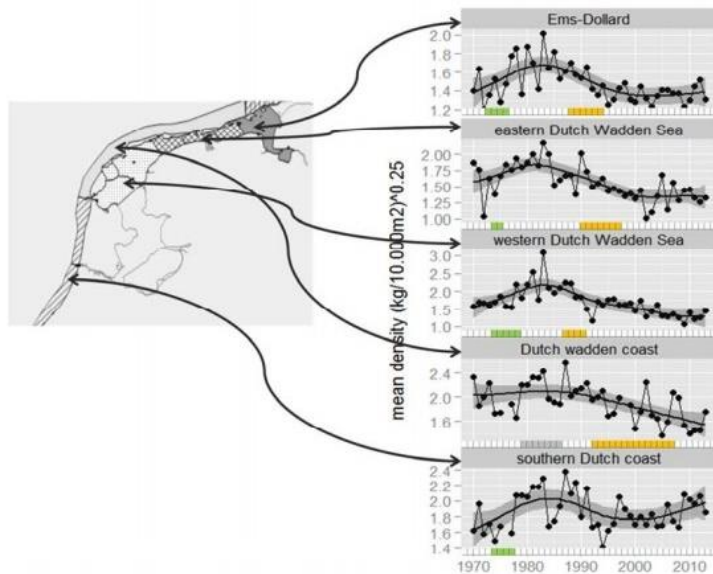


Figure 3 Annual estimated fish biomass between 1970 and 2015 (Source: Tulp et al. 2015)

### Habitat and connectivity loss

Reclamation and the construction of dykes has caused great habitat loss for fish, birds and other species. Many freshwater habitats are no longer accessible and brackish water zones, also known as freshwater-salt water transitional zones, have for the most part disappeared. Salt water habitats, such as sandbanks and mussel and oyster beds, are under great pressure as a result of human activities. Added to that is the fact that essential fish habitats have been both lost and rendered inaccessible owing to the lack of connectivity between habitats. We face challenges as regards the inland waters as well: canalisation, poor water quality and the installation of impassable engineering structures in the past are responsible for many fish habitats having disappeared and/or having become inaccessible.

We will not be able to regain the lost area covered by the Zuiderzee, but we can restore the broken connections between fresh and salt water and habitat quality. With targeted measures aimed at the restoration of freshwater-salt water transitional zones and associated habitats it will be possible to improve populations of fish, birds and other flora and fauna. Other sectors, including the leisure and fishing industries, will benefit as well. The Wadden Sea & Inland Waters Swimway approach is particularly suited to this strategy on two fronts: restoration of connections and habitats.

### The fishing industry

The fishing industry affects fish populations whilst changing fish stocks, in turn, have also had an impact on it. Over the centuries, many fisheries have been dependent on the yield of the productive coastal waters. The collapse of fish stocks and the disappearance of the flat oyster has had a huge impact on life in the various fishing villages all along the Dutch coast. The image below is an example of the catch of smelt in the Zuiderzee/IJsselmeer before and after the construction of the Afsluitdijk. (Source: Sportvisserij Nederland, Jaap Quak). The steep decline in fish populations also means that the impact on the fishing industry is greater than on the remaining fish populations.



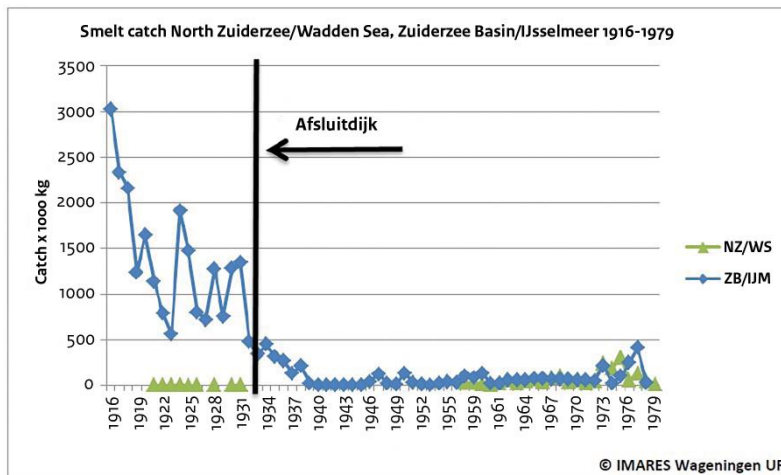


Figure 4 Smelt catch in the Zuiderzee/IJsselmeer before and after the completion of the Afsluitdijk (Source: Sportvisserij Nederland, Jaap Quak)

Close cooperation with the fishing industry offers many opportunities. Working together on the restoration of fish populations will also create more space to use in the long term. There is a great deal of knowledge and experience within the fishing industry, engagement can be exploited in the effective implementation of measures and agreements on fishing-free zones could ensure that spawning and rearing grounds for juvenile fish are available.

### Leisure activities

Leisure activities increase the pressure on the Wadden Sea area and the species living there. At the same time, leisure activities and investment in the restoration of the Wadden Sea area also provide real opportunities for both nature and the leisure sector. One example is the reintroduction of the sea trout to the system of streams that flow into the Wadden Sea, from which anglers can benefit. In Denmark, the streams and small rivers that flow into the Danish part of the Wadden Sea are home to stable populations of salmon and sea trout. Those systems are similar to the streams of Drenthe and the Overijsselse Vecht, which are connected to the Dutch part of the Wadden Sea. In Denmark, the recreational fishing of sea trout alone generates many millions of euros for the region. In the Netherlands, the reintroduction of juvenile sea trout has just begun as part of the Fishing for Connectivity (Vissen voor Verbinding) project. We will have to wait and see over the coming years whether and how they will become permanently established in the Lauwersmeer and Reitdiep system.



Figure 5 Releasing a caught sea trout (photograph: Wilco de Bruijne)

### 2.3 Fish guilds & target species of the Wadden Sea Swimway

Five fish guilds, as indicated in Table 1, have been identified in the context of the Trilateral Wadden Sea Swimway and the international Wadden Sea Board. Those fish guilds are also used for the Wadden Sea & Inland Waters Swimway.

Lifestyle	Flagship species	Fleet species
<b>Pelagic marine juvenile</b>	Herring	Sprat, anchovy, horse mackerel, sea bass
<b>Demersal marine juvenile</b>	Plaice	Sole, dab
<b>Wadden Sea residents</b>	Eelpout	Gobies, sand eel, sea snail, butterfish, mullets
<b>Diadromous species</b>	Smelt	Twaite shad, salmon, sea trout, houting, eel
<b>Marine adventitious</b>	Tope	Thornback ray, dogfish

Table 1. An overview of the five fish guilds identified indicated in the Wadden Sea & Inland Waters Swimway.

Each fish guild is represented by a 'flagship species'. This is a well-known and/or typical species that exhibits a certain lifestyle and represents a number of 'fleet species' with a similar lifestyle. These fish guilds illustrate the various ways in which the Wadden Sea area is used by fish, both the various sub-areas (Figure 6) and the different layers of the water column (benthic and pelagic fish).

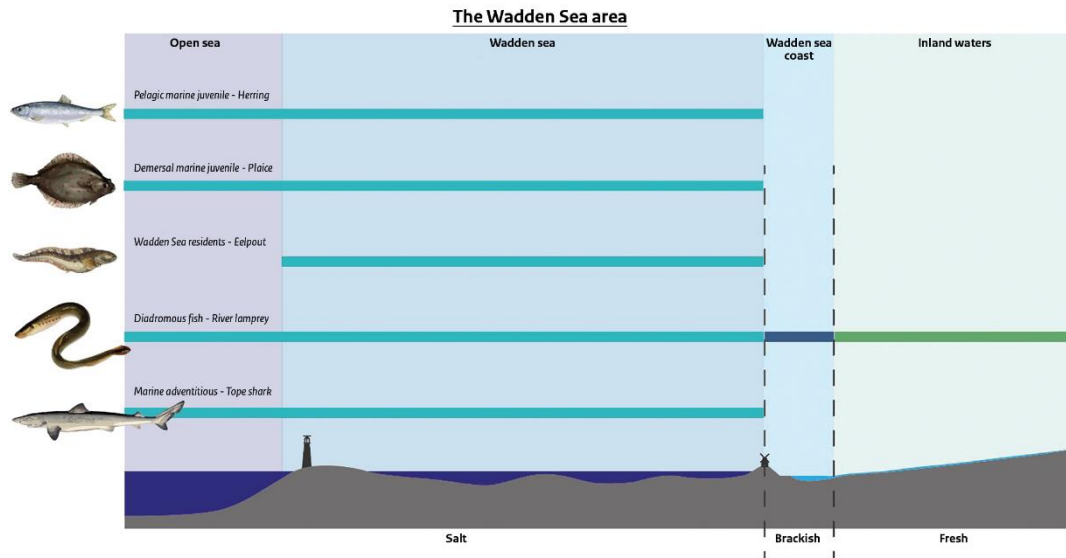


Figure 6 The distribution of the fish guilds among the various (horizontal) zones of the Wadden Sea area.

The Wadden Sea & Inland Waters Swimway represents the sum of the habitats these fish species collectively need. By concentrating on the needs of fish from each guild we are well on the way to a broad restoration of the different fish populations and, ultimately, the Wadden Sea ecosystem as well.

### Diadromous species

Four of the five fish guilds occur only in salt water, with the shallow Wadden Sea being used mainly as a rearing ground and an area in which to live. Only the diadromous fish move inland to the brackish water and freshwater. The range of a habitat varies from species to species. Species such as the twaite shad move only a short distance into the rivers in order to lay their eggs, whereas species such as the river lamprey and the sea trout will swim deep into the inland waters to reach the gravel beds in flowing streams (the 'nurseries').

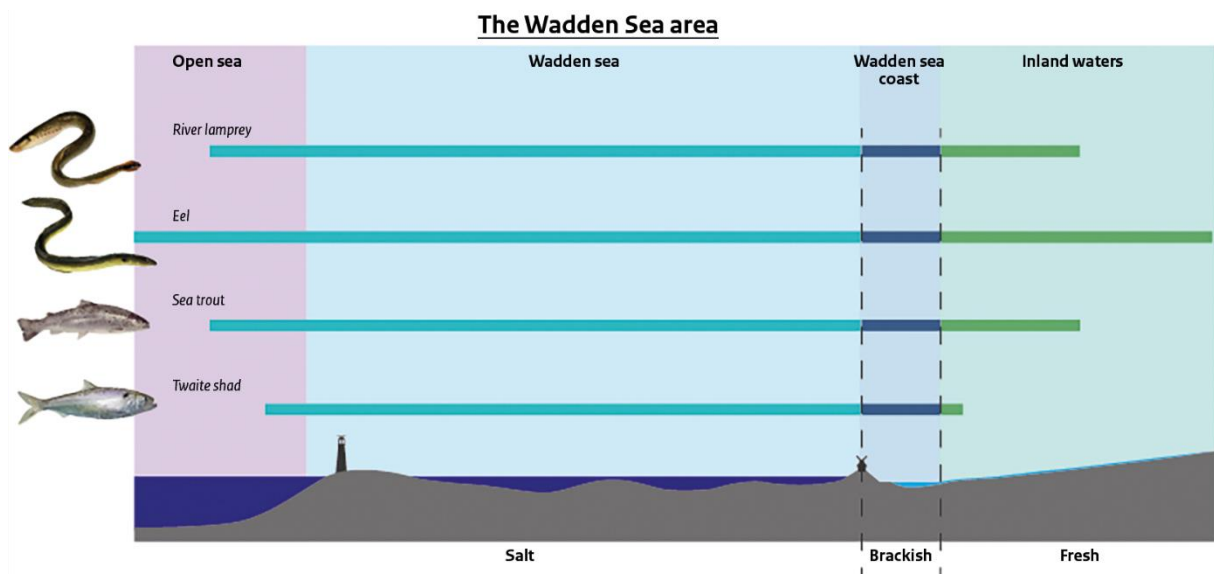


Figure 7 Diadromous fish species traverse every zone of the Wadden Sea area during their life cycles.

These diadromous fish species need a connection between the Wadden Sea, the brackish part of the Wadden Sea coast and the freshwater inland waters, which functions well from an ecological point of view. This makes them an iconic species group for cooperation between managers of the Wadden Sea on the one hand and the inland waters, on the other.

## 2.4 Wadden Sea & Inland Waters Swimway

### **Iconic species**

As has been mentioned, the term 'swimway' refers to the collection of habitats and the connections between them that a fish species or group of fish species needs in order to complete its life cycle. The Wadden Sea & Inland Waters Swimway is for all fish species which use the Wadden Sea area. Five fish guilds have been identified, with the flagship fish species used as iconic species in information about the Swimway and in projects. Alongside the smelt, the river lamprey, sea lamprey and twaite shad are used as iconic species for the 'diadromous species' guild only. These species have a clear link with the inland waters and are species for which Natura 2000 requires important tasks to be performed.

*'The Wadden Sea Swimway will focus on five fish guilds that use the Wadden Sea and the inland waters'*

### **Life-cycle approach**

The Wadden Sea & Inland Waters Swimway is based on the life-cycle approach. This means that the area is considered from the aspect of the linkage of all habitats that the fish species of the five fish guilds need in order to complete their life cycles. Some fish species spend their whole lives in the Wadden Sea. For other species, it is exclusively a rearing ground or a connecting route to other waters such as the North Sea, or the streams and canals of the hinterland adjoining the Wadden Sea.

In taking the life-cycle approach as the basis, we are examining the importance of the Wadden Sea in its entirety and the inland waters to the various fish species during the stage of life they are in. This clearly shows that from the perspective of these fish guilds the Wadden Sea area extends much farther than the borders of our management areas.





Figure 8. Wadden Sea & Inland Waters Swimway from the perspective of the five fish guilds

**Transboundary ecological connectivity**

The diadromous fish species, in particular, are known to travel great distances between freshwater and salt water. Species such as the twaite shad move only a short distance into the rivers in order to lay their eggs, whereas species such as the river lamprey and the sea trout will swim deep into the inland waters to reach the gravel beds in flowing streams (the 'nurseries'). Properly functioning ecological connections between freshwater, brackish water and salt water are of crucial importance to these species.



*Figure 9. Impression of diadromous fish species whose life cycles link the Wadden Sea and the inland waters*

### 3. Cooperation and working method

#### 3.1 Existing roles and responsibilities

There are many organisations, each with a role and responsibility in management, policy, the implementation of measures, including development measures, legislation, the granting of permits, supervision & enforcement, research & monitoring and communication in the Wadden Sea area. This abundance of tasks, statutory and otherwise, and responsible bodies means that it is often far from clear who exactly is responsible for which aspect.

The freshwater-salt water transitional zones are one example. The creation of a freshwater-salt water transitional zone can be 'accommodated' in a project that goes beyond a single management area and in which various commissioning parties are involved. This has already proved successful on multiple occasions, the Fish Migration River project being one such example. However, the management of a freshwater-salt water transitional zone is less straightforward, precisely because such zones need to be managed across management area and other borders. This requires close consultation and clear agreements. Figure 10 Figure 14 is a simplified representation of the bodies responsible for management and measures, including development measures

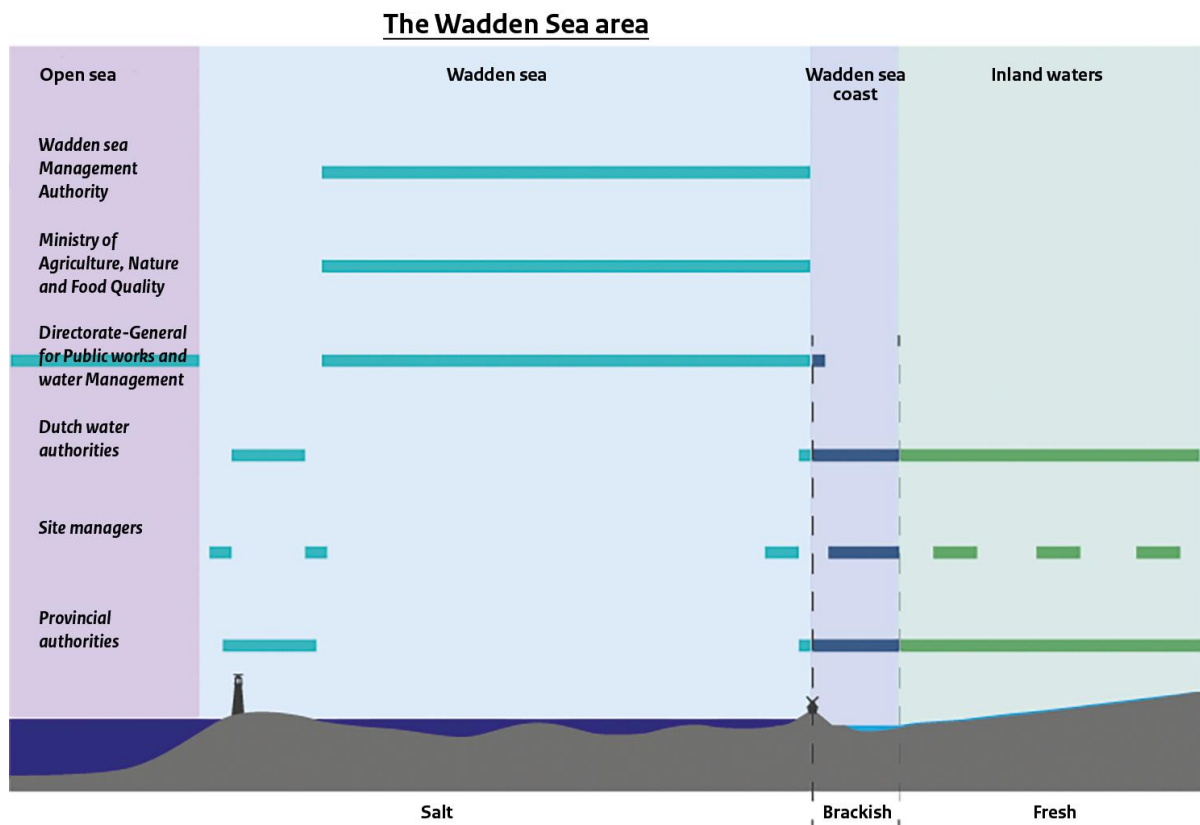


Figure 10 A simplified representation of the bodies responsible for management and measures, including development measures. The reality is complex and not always clear, especially with regard to the transitional zones between areas and the islands.

Making sure that the various pieces of the puzzle of the different management areas fit together is an important part of the fish life-cycle approach. Knowing your neighbours and each other's roles and responsibilities is therefore an important step towards the successful implementation and management of the Wadden Sea & Inland Waters Swimway. A proactive approach involving entering

into dialogue with each other and making agreements will be required where those roles and responsibilities are unclear.

### 3.2 The transboundary cooperation required

The Wadden Sea & Inland Waters Swimway will stimulate and facilitate cooperation between the various bodies involved. The life-cycle approach shows that combined efforts will be needed and that the success of the approach will partly depend on the efforts of other parties. Every water manager and/or nature conservationist will have its own objectives and responsibilities. However, working towards the restoration of fish populations goes beyond the individual management areas, so cooperation will be necessary if that work is to be effective. Whether you are currently working on fish targets within the WFD programme, Natura 2000 programme or another policy programme, the cross-border life cycle of fish means that you will be reliant on neighbouring organisations if you are to achieve those objectives. It will not be possible to restore the fish population in a sustainable manner until the entire life cycle of the fish has been catered for. Cooperation will therefore increase the chance of your own policy objectives being achieved.

#### **Shared ownership of the Wadden Sea & Inland Waters Swimway**

This will require shared ownership and a proactive attitude towards neighbouring organisations when working towards the restoration of fish populations. The Swimway working method involves thinking in terms of pieces of a puzzle as the work will not be finished until the puzzle is complete. In short, the Wadden Sea & Inland Waters Swimway follows the example of the fish by crossing borders.

### 3.3 The working method: the life-cycle approach

In this approach, decisions on the activities to be carried out are always based on the entire life cycle of the fish. Policies or projects often focus on a single element of the life cycle of the fish, such as connections (fish passages), regulation of the fishing industry or habitat restoration. The sustainable and effective restoration of the fish populations in the Wadden Sea will require all elements to be present and functioning. The life cycle broadly consists of the following substantive parts:

- A suitable habitat for adult fish;
- A connection to a reproduction ground;
- A suitable spawning ground;
- A connection to a rearing ground;
- A suitable rearing ground;
- A connection to an area in which to live.

This working method includes four pillars:

1. Policy;
2. Measures and management & maintenance;
3. Research and monitoring;
4. Network, communication and education.

These four pillars also form the basis in the international swimway approach, with two exceptions. The 'measures' component has been extended to include 'management' in this action plan. The management & maintenance of facilities and habitat is often a neglected aspect, despite being a crucial point for the sustainable functioning of the life cycle of fish. In addition, the word 'network'



has been explicitly included for the fourth pillar because bringing parties together and sharing knowledge is regarded as an important success factor.

The life cycles of the target species we have identified for the Wadden Sea Swimway can be compared with a large puzzle. The various pieces, comprising the different habitats and migration routes, must all be present in order to complete the puzzle and thus the life cycle. One or more missing pieces will mean that the life cycle is interrupted and impossible to complete. This will result in the deaths of the individual fish and a weakening of the population.

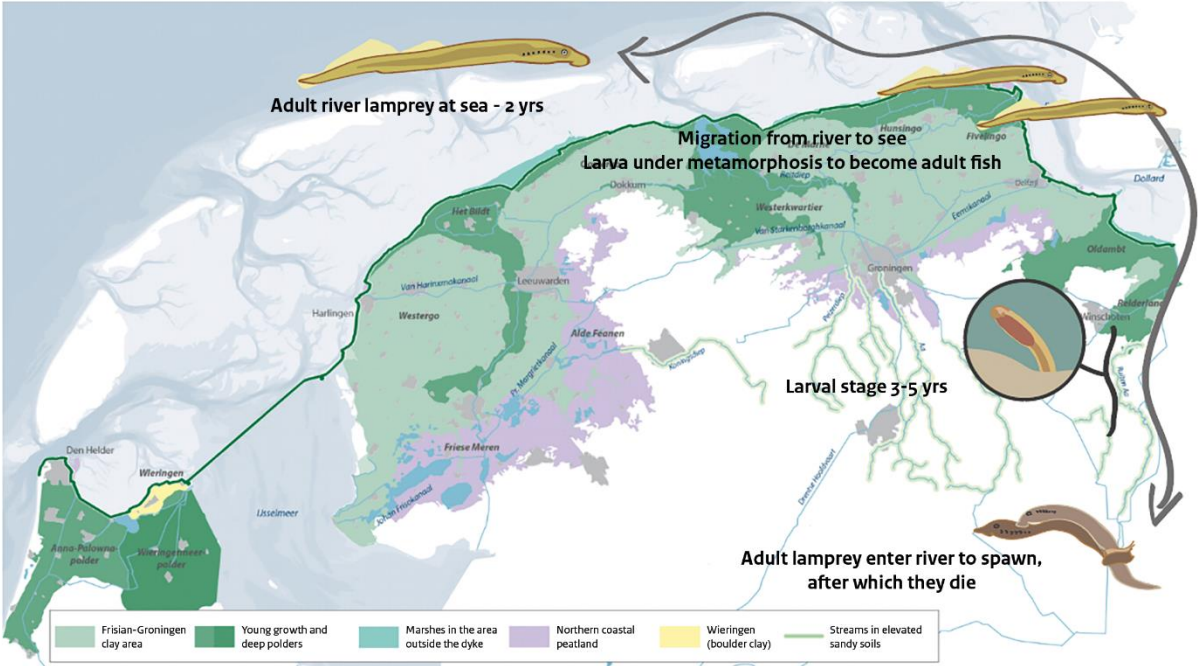


Figure 11 The life cycle of the river lamprey embraces the areas between the coastal zone of the North Sea up to the streams in the hinterland.

Showing the life cycle of a target species on a map creates a clearer picture of where the various pieces of the puzzle may be found and who has a responsibility for those locations. This will make it simple for an organisation with responsibility for one or more pieces of the puzzle to make contact and enter into dialogue with other organisations responsible for the remaining pieces of the puzzle. The puzzle therefore facilitates the shared mission to restore fish populations.

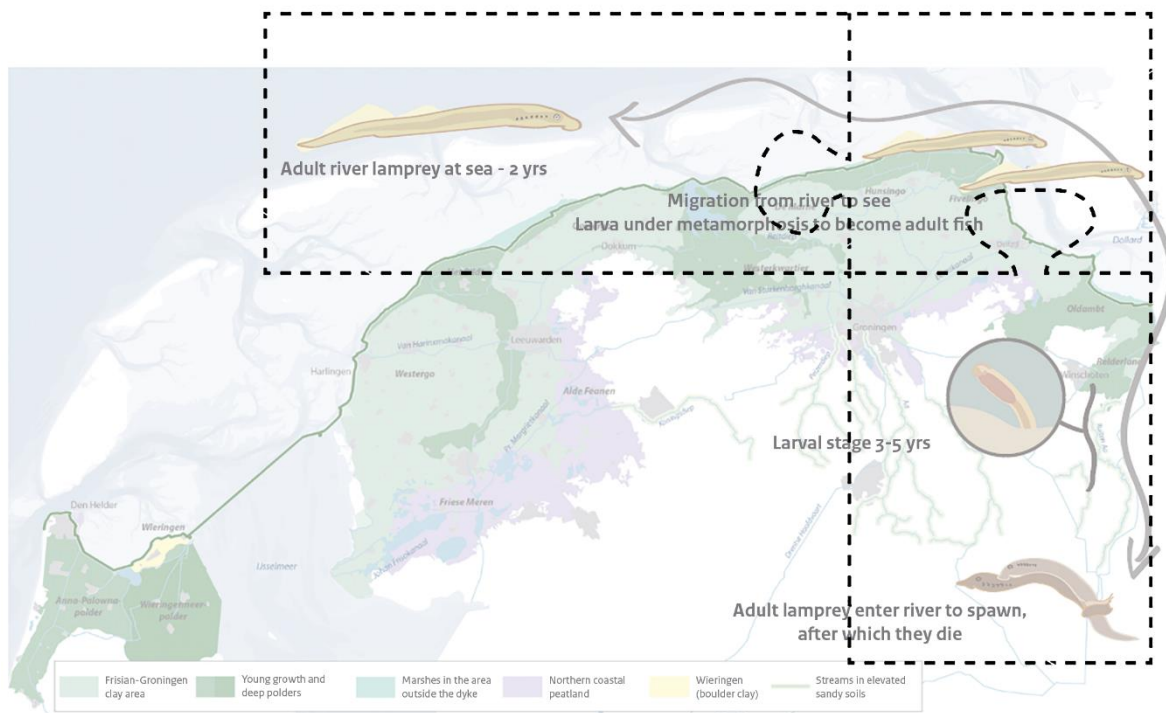


Figure 12 Cutting the life cycle into individual pieces (habitats and connections) and superimposing the boundaries of the water managers over them creates pieces of a puzzle (illustrated here) in which the responsible managers will be able to find each other.

### 3.4 Relationship with other programmes

The Wadden Sea & Inland Waters Swimway is not the first Swimway programme in the Netherlands; Swimway Waddenzee and Swimway Vecht, for example, have been in operation for some time now. There are also several other programmes that focus on fish and fish migration and/or habitat restoration, such as Vissen voor verbinding (Fishing for Connectivity) and Ruim Baan voor vissen (Make Room for Fish).

Most of the aforementioned programmes concentrate on a single fish guild or species, have a regional focus or a focus on a specific body of water, such as the Wadden Sea or the Vecht. The Wadden Sea & Inland Waters Swimway zooms out further, focuses on all five fish guilds of the Wadden Sea area and has an approach based on the regional system, paying particular attention to the North Sea, the Wadden Sea and the inland waters. Programmes like 'Vissen voor verbinding' expressly implement specific tasks within the Wadden Sea & Inland Waters Swimway.

The Wadden Sea & Inland Waters Swimway will not replace these programmes, but rather act as an umbrella that connects and reinforces them. It is a story that makes it clear that all these programmes and initiatives jointly contribute to a larger system and are pieces of a puzzle of the overall picture on which many fish species depend. It will therefore help to ensure alignment between the impact of the various programmes.

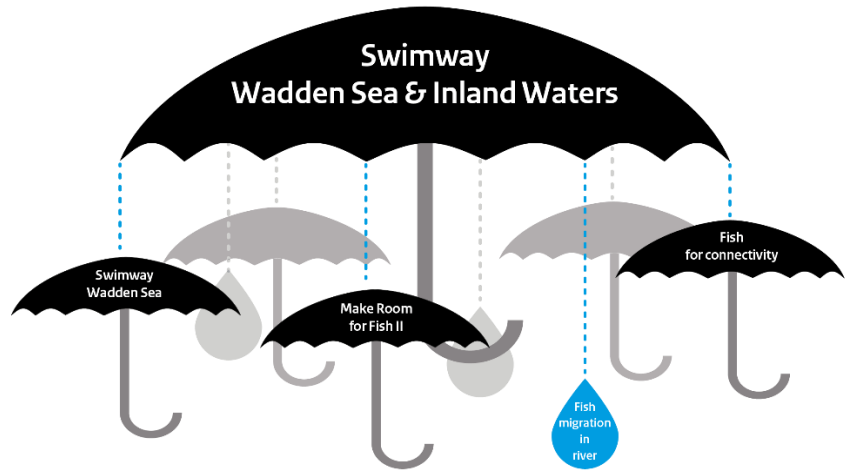


Figure 13 The Wadden Sea & Inland Waters Swimway in relation to other programmes (smaller umbrellas) and projects (raindrops).



## 4. Ongoing programmes and projects

It is important that we know where we currently stand if we are to identify what is required for the Swimway restoration and where we should focus our attention in the coming period. This is examined in this chapter.

A host of programmes, projects and measures aimed at restoring fish populations has been implemented in recent years. Using both stand-alone projects and local or regional programmes, water and other managers have committed themselves to resolving fish migration bottlenecks, restoring underwater habitats, making adjustments to management, research and monitoring, drawing up fish-friendly policies, and communication and education. Projects are being carried out as we speak, and many are planned for the years ahead.

The aim is to use the Wadden Sea & Inland Waters Swimway as an umbrella that connects all these projects and efforts. The programmes and projects are united by a common goal - a Wadden Sea area teeming with fish. An overview of the programmes and projects under way in spring 2021 is provided in this chapter - and in appendix 2 - and we identify which elements are still missing or will require reinforcement in the future.

### 4.1 Overview of projects and programmes for fish in the Wadden Sea area

Recently completed, ongoing and planned activities aimed at the restoration of fish populations in the Wadden Sea area were identified and listed in spring 2021. The activities have been broken down into the following categories so as to obtain a clearer picture of what they are intended to achieve.

#### **Zoning and type of activity**

##### *Zoning*

- Wadden Sea  
*These projects take place in and/or focus on the salt water environment;*
- Wadden Sea coast  
*These projects take place in and/or focus on the edges of the Wadden Sea and the freshwater-salt water transitional zone or zones;*
- Inland Waters  
*These projects take place in and/or focus on the freshwater environment.*

##### *Type*

- Physical measures  
*Physical and practical measures, for example, the creation of habitat, mitigation of fish migration bottlenecks or the release of fish;*
- Policy  
*Policy measures aimed at securing agreements, or better agreements, for the maintenance or restoration of fish populations. Examples include policy on fisheries, the drawing up and attainment of objectives and compliance with international agreements.*
- Research & monitoring  
*All measures are means intended to lead to a specific goal. Identifying the causes of the decline of fish stocks, the role played by the Wadden Sea in the life cycle of fish or the effectiveness of a measure requires research and monitoring. If applicable, specific management measures can be drawn up based on the results.*
- Communication, participation and education  
*Communication is essential as a means of involving people in the subject and creating support among local residents, stakeholders and managers. Acceptance of the importance*

*and urgency of the subject is an essential foundation and will be required if we are to be able to implement measures.*

The list of activities shows that work aimed at the restoration of fish populations is being carried out at many different sites. Appendix 2 contains the full overview of activities. The list covers the zoning and the types of activities and their relationship with each other. In the case of physical measures, a distinction is made between projects aimed at fish migration, habitat restoration and other aspects.

The list is not exhaustive. In addition, it is not always clear exactly which activities are being carried out (the number of fish migration structures, how many kilometres of habitat are being restored, etc.). Nevertheless, the analysis can be used as an indication of where the focus lies, i.e. on zoning and the type of projects involved. The list also provides an overview of who is doing what, making it easy for managers to contact one another.

### Activities map

The idea behind the activities map is to obtain a spatial view of the activities and to list and identify the themes on which the focus lies. Ongoing measures and monitoring & research projects from the list of activities, or the majority of them, are shown on the map. Activities aimed at stakeholder involvement & communication and policy are not shown on the map because they are more difficult to identify in spatial terms. The map is intended to provide an broad idea of what is happening and where, and will require constant adjustment to remain up-to-date.

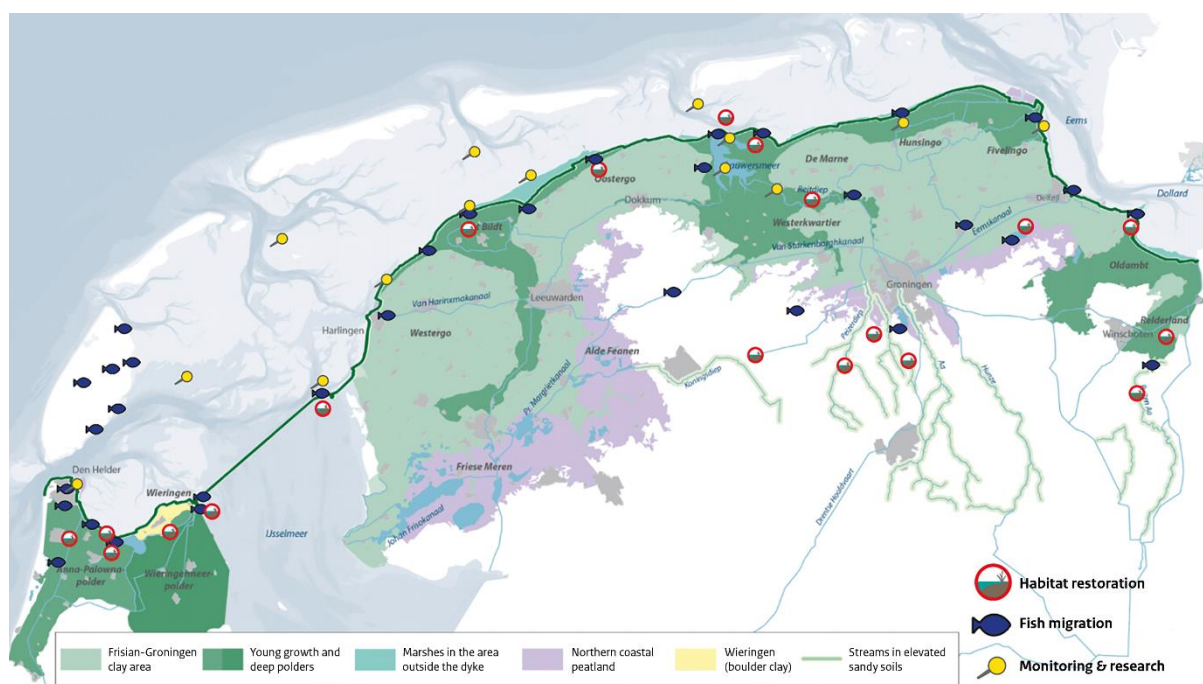


Figure 14 Broad overview of ongoing programmes and projects (reference date 1-4-2021)

## 4.2 Points to note for the future

The broad overview of the various programmes and projects has revealed the following points to note.

- **There is a limited number of joint transboundary projects**

There is a limited number of projects in which different managers dealing with different elements of the life cycle of the fish are involved. Most projects concentrate on a single element of the life cycle of the fish;

- **The focus is on fish migration projects (in inland waters and the Wadden Sea coast)**

The number of projects aimed at the restoration of fish migration connections is greater than the number of projects aimed at habitat restoration\*. The figure for the Wadden Sea coast is about 75%, and for the inland waters about 60%;

*\*only the goal of the project, not the quantity, was considered. It is therefore primarily indicative of where the focus lies.*

- **There is a focus on projects for diadromous fish**

Most projects concentrate on diadromous fish. There is a limited number of projects for fish from the other four fish guilds;

- **There is a marked focus on projects in the Wadden Sea coastal zone and the inland waters**

The largest number of projects is in the Wadden Sea coastal zone and the inland waters.

There is a limited number of projects in the Wadden Sea (roughly 15%) and nearly all focus on monitoring and research;

- **A link in policy with the inland waters is mostly absent**

The link between various policy programmes in the North Sea, the Wadden Sea and the inland waters is limited. There is barely any link in nature conservation policy between, for example, the IJsselmeer and the Wadden See - both protected Natura 2000 areas. In addition, there is very little alignment in the regular monitoring of maintenance objectives in the various areas;

- **Focus on measures, some focus on research and little on communication**

The bulk of the projects involve specific measures; several focus on research and monitoring, but only a small number is aimed specifically at communication and participation;

- **There are hardly any management and maintenance projects**

There are hardly any programmes and projects aimed at ecological management; it is usually included directly in management programmes.

## 5. Working towards an action plan for the Wadden Sea & Inland Waters Swimway

In this chapter, we describe the main issues that will have to be dealt with in order to strengthen the Wadden Sea Swimway in the coming years. They are based on the analysis made of ongoing programmes and projects (see chapter 4) and the contributions of the various parties involved (during the working sessions) and could be developed into an action plan for the years ahead.

### Core issues

The core issues for the Wadden Sea & Inland Waters Swimway were drawn up in collaboration with the parties involved. They are the most important issues that will have to be dealt with in order to improve the various fish populations. They have been classified in line with the four pillars of the Trilateral Wadden Sea Swimway programme, as follows:

1. Policy;
2. Measures and management;
3. Research and monitoring;
4. Network, communication and education.

Core issues	Policy	Measures and management	Research and monitoring	Network, communication and education
1. Improving sustainable management of all five fish guilds in the Wadden Sea and the North Sea	X	X	X	
2. Focus on restoration and sustainable management of freshwater-salt water transitional zones	X	X	X	X
3. Improving habitat and sustainable management of spawning and rearing grounds in the freshwater system for migrating fish	X	X		X
4. Improving the link between policy and knowledge agendas among the various life cycle sub-areas	X		X	
5. Improving knowledge development, coordination and exchange of knowledge about monitoring, data and research		X	X	X
6. Improvement, maintenance and innovation in the management of fish migration structures, habitat and fishing-free zones	X	X		
7. Improve cooperation, the network and the exchange of knowledge between the parties working on the Wadden Sea Swimway				X
8. Improve communication about the importance of the Wadden Sea Swimway				X

Linked to these core issues, the following individual building blocks that will be required in order to achieve the trilateral fish targets in the Netherlands have been identified.

## **Building blocks for the future**

### **1. Strengthen cooperation based on joint ownership and strengthen the Wadden Sea & Inland Waters Swimway community**

Cooperation needs to be strengthened if the life cycle of the five fish guilds is to be improved throughout the Wadden Sea area. This will involve cooperation across individual management borders and will start with each party being clear about its responsibilities and roles and those of the other parties; there must also be a shared view of the joint ownership of the Wadden Sea & Inland Waters Swimway. This is because it will not be possible for a single party to restore the entire life cycle on its own. And no party operating on its own will achieve its fish targets in a sustainable manner without the restoration of the entire life cycle.

A vibrant community of people and parties who will work on improving the fish populations in the Wadden Sea area will be developed, or developed further, in order to provide a framework for this. The idea is to develop an open community of collaborative parties where you can provide and receive knowledge, experience and inspiration. The community will be accessible to anyone wishing to make a positive contribution to the restoration of the fish populations. It is important that the community is 'safe' and people feel able to share successes, failures and concerns. Depending on the level of interest, different focus areas could be developed within the community. They could focus on monitoring, management, habitat, connections, etc.

We recommend organising four networking events a year where knowledge, experience and inspiration can be shared. You should always be on the lookout for links between perception and experience in the field and there should be ample scope for informal meetings. An independent community manager will coordinate the activities and facilitate the development of the community.

### **2. Embedding fish targets and target species more effectively in existing policy**

Most of the organisations involved work on the basis of policy objectives. The Swimway approach challenges these organisations to look beyond borders and obligations and consider their goals from the perspective of the life-cycle approach, because ultimately many of the policy objectives for fish will depend on the restoration of the entire life cycle.

The good thing is that this will help organisations hugely to formalise goals further and lay them down in policy. Only some of the target species mentioned are part of existing policy. The 'Analysis of the implementation of Trilateral fish targets in the Netherlands'<sup>1</sup> sets out specific opportunities and recommendations so as to ensure that fish targets and flagship species are embedded more effectively in existing national and international policy frameworks. Embedding fish targets and target species more effectively in existing policy will increase the sense of urgency in and scope for action of organisations needed to tackle this.

### **3. Improving the management of the five fish guilds and refining implementation management**

The third action involves concentrating on improving the populations of all five fish guilds in the Wadden Sea area as a whole. A plan setting out the details of the various aspects of the life cycle of the five fish guilds will be developed for this area - and therefore for the various sub-areas as well.

---

<sup>1</sup> Walker, P.A. 2021. Analysis of the implementation of Trilateral fish targets in the Netherlands

This will not be a new management plan but rather an action plan establishing the connection to the various programmes based on the five fish guilds.

We do not yet have a sufficiently clear picture of the opportunities available for improving fish populations for various fish guilds. The focus should therefore be on the following aspects:

- Improving the sustainable management of all five fish guilds in the Wadden Sea, the North Sea and the inland waters;
- Concentrating on the restoration and sustainable management of freshwater-salt water transitional zones;
- Improving habitat and ensuring the sustainable management of spawning and rearing grounds in the freshwater system of the inland waters for migrating fish;
- Improving, maintaining and innovation in the management of fish migration structures, habitat and fishing-free zones

This will also improve the alignment of the various policy goals. There are different policy lines for the protection of the various fish populations - on the 'salt water' side and on the 'freshwater' side, and between central governments and regional authorities. This action will improve the alignment of the different statutory tasks and policy frameworks.

The focus will be on tightening up monitoring of the progress made in implementing the policy and management objectives. An improvement of the fish populations in the longer term will require the various improvements in the life cycle to be implemented as a whole. Direction provided by the responsible organisations will be required for the implementation of the various activities - under the life-cycle approach.

#### **4. Improving knowledge development, improving coordination and exchange of information**

The fourth activity involves an increased focus on the development of knowledge as regards the management of fish populations, improved coordination and data sharing. The life cycle is used as the guide here as well. This is a matter of, on the one hand, developing knowledge of the entire life cycle of the fish. A greater level of knowledge about all five fish guilds is required, as is better coordination during the setting up and monitoring process so that data can be compared and the knowledge base can be improved over the years.

On the other hand, the data obtained regarding the five fish guilds need to be recorded in a uniform way, and be accessible to the whole community. This will provide a clearer picture of the situation as regards the fish populations and the possibilities for sustainable management. As a result, more efficient use will be made of knowledge and resources because they will be shared and the whole community will benefit from the investments of individual organisations. It will also help to reinforce the 'team spirit' because the parties will develop the knowledge together.

#### **5. Better coordination of knowledge agendas**

The fifth activity involves improving the coordination of the knowledge agendas for fish-related matters in the North Sea, the Wadden Sea and the inland waters. The North Sea, the Wadden Sea and the inland waters such as the IJsselmeer area and the waters in Friesland, Groningen and Drenthe are different areas with different fish-related knowledge agendas. A knowledge agenda is in place for the Wadden Sea itself in the form of the Regional Agenda 2050. During this activity the focus will be on tackling knowledge agendas from the perspective of the life cycle of the fish and bringing them more into line with each other. The five fish guilds from the Wadden Sea & Inland Waters Swimway take centre stage.

## **6. Securing the results of research and monitoring activities already carried out**

Research and monitoring are essential in the assessment of measures taken and the accumulation of knowledge about the system. Long-term measurement series, in particular, provide very valuable insights into the functioning of the system. The monitoring of measures, or the use thereof, and research into ecological functioning of the system is carried out within various programmes, including Vissen voor Verbindig, Ruim baan voor vissen and the Wadden Society's Swimway project. These programmes are finite, though. It is hugely important that this knowledge is retained and monitoring and research continued where necessary.

## **7. Increasing the focus on the creation of freshwater-salt water transitional zones and habitat restoration**

This point concerns the physical reinforcement of the Wadden Sea & Inland Waters Swimway in the coming years. There are two missing or imperfectly functioning pieces of the life cycle puzzle - 1. The freshwater-salt water transitional zones between the Wadden Sea and the inland waters for migrating fish - one of the fish guilds - and 2. the underwater habitat for fish. The latter point applies both to the Wadden Sea and the inland waters.

The freshwater-salt water transitional zones are situated on the coast line at the point where freshwater and salt water environments meet. They are very nutrient-rich areas and provide the fish species with the space to adapt from one marine environment to the other. In many cases, freshwater-salt water transitional zones on the Wadden Sea coast are limited in number and quality. Suitable habitat has also declined in size and/or only developed to a limited extent in those cases. This is true of the underwater habitat in the Wadden Sea - for instance, an almost complete absence of sea-grass - and the quality of the rearing and spawning grounds in streams and waterways. As far as this latter aspect is concerned, recent years have seen a substantial improvement in inland waters for migrating fish such as the whitefish, eel, three-spined stickleback and sea trout, but further improvement of flowing streams, water quality, environmentally friendly banks, flood plains and ecological connections is needed.

## **8. Working on shared opportunities for external funding**

Investments are required to achieve the necessary improvements. Raising funds can therefore play an important role as any funds raised will enable a project to be implemented in a more ambitious way and/or faster.

There is another advantage to pursuing joint financing of ambitions: it will strengthen the partnership between parties and ensure that efficient use is made of each other's knowledge and network.

## **9. Jointly conducting a Wadden Sea & Inland Waters Swimway communication campaign**

The final point to cover involves the development and implementation of a hands-on communication campaign for the Wadden Sea & Inland Waters Swimway. It is intended to bring the importance, protection and restoration of the Wadden Sea Swimway and the cooperation between parties further into the spotlight. The communication is aimed primarily at professionals and managers working in this field. The communication campaign will seek to illustrate effectively the synergy between the activities and the ongoing projects/programmes of the various parties.

The use of identifiable 'Swimway materials' will form part of the communication campaign. This report provides a number of examples of those materials, such as the summary and infographics. Specific resources, including a 'life cycle puzzle', could also be developed. The puzzle illustrates the



various elements of the life cycle that are of general importance or of specific importance to the various target species. The puzzle would facilitate our internal dialogue (what are we doing or what contribution are we making) and dialogue with neighbouring managers, including water managers, which also form part of this life cycle.

## APPENDIX 1 Relationship with existing policy

### Trilateral objectives: Wadden Sea Plan

Danish, German and Dutch fish experts have developed shared conservation objectives for fish; the Trilateral Fish Targets. These targets are part of the revised Wadden Sea Plan 2010 and were signed by the ministers from the three countries in the Leeuwarden Declaration 2018. The targets, which focus on the conservation or improvement of the following aspects, are as follows:

1. Robust and viable populations of estuarine resident fish species;
2. Nursery function of the Wadden Sea and estuaries;
3. Quantity and quality of typical Wadden Sea habitats;
4. Passageways for fish migrating between the Wadden Sea and inland waters;
5. Conservation of endangered fish species.

### Statutory task under Natura 2000

Natura 2000 is a European network of protected nature conservation areas. Species of flora and fauna that are endangered in Europe and their natural habitats are protected in Natura 2000 areas so as to preserve diversity. The Wadden Sea is a Natura 2000 area with its own conservation targets, including some fish species; the sea lamprey, river lamprey and twaite shad. They are diadromous species, which means that attainment of these conservation targets will in part depend on what happens in the inland freshwater areas. This underlines the importance of the life-cycle approach, with water managers acknowledging a shared responsibility for the conservation of these species.

Species	Conservation target Population	Population trend classification	Target range evaluation*
Sea lamprey	> 15,000	Decrease	Target not achieved
River lamprey	> 60,000	Uncertain/Decrease	Target not achieved
Twaite shad	> 4,000 adults	Uncertain/Decrease	Target not achieved

Bron: [https://puc.overheid.nl/rijkswaterstaat/doc/PUC\\_625163\\_31/1/](https://puc.overheid.nl/rijkswaterstaat/doc/PUC_625163_31/1/)

As well as these target species, Natura 2000 also focuses on types of habitat occupied by a number of typical fish species, including permanently submerged sandbanks (habitat type H1110A), tidal flats (H1140a) and estuaries (H1130).

	H1110A	H1140A	H1130
<b>Flounder</b>	X	X	X
<b>Butterfish</b>	X		X
<b>Grey mullet</b>		X	
<b>Herring</b>	X		X
<b>Armed bullheads</b>	X		X
<b>Eelpout</b>	X		X
<b>Dab</b>	X		X
<b>Plaice</b>		X	X
<b>Sea snail</b>	X		X
<b>Smelt</b>			X
<b>Five-bearded rockling</b>	X		
<b>Whiting</b>			X
<b>Bull rout</b>	X		X

### **Statutory task under the Water Framework Directive (WFD) marine**

The WFD does not contain a target for fish for the water bodies in the Wadden Sea, although there is one for the Ems-Dollard. In the Foundation for Applied Water Research (STOWA) document, the Eems-Dollard is characterised as O2a transitional water, an estuary with a moderate tidal range. Fish are a benchmark for biological water quality for these waters. The fish species used as a benchmark for transitional waters are divided into six ecological guilds, based on an Elliot & Hemingway (2002) classification:

<b>Ecological guild</b>	<b>Indicator species</b>
Diadromous species	Smelt and twaite shad
Estuarine resident species	Sea snail and flounder
Marine juveniles	Herring and whiting
Marine adventitious	(no indicators prepared as too few were caught)
Freshwater species	Ruffe

Sub-benchmarks for each ecological guild include a) abundance and b) species composition. The sub-benchmark 'age structure' applies only to diadromous species (age groups 0+, sub-adult and adult). Only where all three age groups are represented can a population be described as a self-sustaining population. In addition, the densities in spring and autumn are compared with historical benchmarks (from around 1900), data from a period when water management and fishing were already taking place. The fish index is calculated using several calculation rules in order to arrive at an EQR score (ecological quality ratio of between 0 and 1) and which gives a verdict on the condition of the water system.

As well as monitoring fish as a benchmark for the biological condition of the Eems, the WFD programme is also used to implement measures or to fund research programmes such as Waddenmozaïek (Wadden Mosaic), Ruim Baan voor Vissen 2 (Make Room for Fish II) and Swimway.

### **Statutory task under the Water Framework Directive (WFD); freshwater**

The diadromous species do not respect the WFD water-body boundaries of the Wadden Sea. These species move to the freshwater inland waters and back again via the transitional waters. These waters are managed by the surrounding water authorities. Not only the coastal waters (K type) and transitional waters (O type), but also the freshwater M and R water types will benefit from the restoration of habitat connectivity. For instance, in the Frisian clay region (mildly brackish polder channels - WFD water type M30) diadromous species represent a substantial part of the WFD score, and the establishment of species such as the three-spined stickleback, smelt and glass eel and an increase in their number will have a direct impact on the WFD score. That impact will be more limited on the Friese Boezem (WFD water type W6b) as a whole, but here, too, do diadromous species form part of the WFD benchmark. An increase in eel numbers here, in particular, will have an impact on the WFD score. The same impact will be felt in the waters in the far north of North Holland (Noorderkwartier Water Board) and the waters of the Noorderzijlvest and Hunze & Aa's Water Authorities.

### **Wadden Sea (and Eems-Dollard) PAGW policy framework**

The Wadden Sea PAGW and Eems-Dollard PAGW give an additional boost to WFD and Natura 2000 targets. The central tasks are to restore vitality, recreate lost habitats and restore connectivity between habitats. This can be seen in projects engaged in:

- Smoothing the borders of the Wadden: Koehool-Lauwersmeer and Lauwersmeer-Vierhuizengat;
- Silt sedimentation in the area outside the Eems-Dollard dyke zone;

- Silt sedimentation in the area within the Eems-Dollard dyke zone.

There are also two feasibility studies for the Wadden Sea PAGW, one concerning the

- restoration of the underwater natural environment; and
- the restoration of large-scale connections.

**Policy framework: Regional Agenda for the Wadden Sea area 2050**

Problem-solving approaches and measures for the Wadden Sea will be set out in more detail through the Wadden Regional Agenda 2050 in the near future. These are shared long-term objectives that will help to guide government agencies, site managers and the business community in the development of the Wadden Sea area. Until such time, the following five goals are felt to be of importance as a means of making the natural environment robust:

- Opting for sustainable and socially appropriate use and management (no footprint)
- Developing the natural environment and restoring quality, quantity and connectivity through design;
- Monitoring, evaluating and research;
- Conducting exploratory studies and feasibility studies as a means of better substantiating problem-solving approaches and measures;
- Raising societal awareness.

With this agenda, the natural environment (and fish) will become an integral part of the development of the Wadden Sea area. This is of great importance because every activity in the international Wadden Sea area could have an impact on the system.

## APPENDIX 2: OVERVIEW OF ONGOING PROGRAMMES AND PROJECTS

Programme (optional)	Title	Description
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Visweringen gemaal Fiemel en Veendam (Fish deterrents at the Fiemel and Veendam pumping stations)	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Vismigratie Noord-Oost Groningen (Eemvissen in Beeld) (North-East Groningen fish migration (Fish in the Eems - an overview))	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Verbeteren visveiligheid 3 poldergemalen (Eemvissen in Beeld) (Improve fish safety 3 - polder pumping stations (Fish in the Eems - an overview))	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Aanleg visweringen bij gemalen (Construction of fish deterrents at pumping stations)	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Ontsluiting Marensysteem Reitdiep (3 vispassages) (Opening up the system of narrow waterways of the Reitdiep (three fish passes))	The 'Opening Up the System of Narrow Waterways' project aims to open up the system of narrow waterways in the Reitdiep for diadromous fish species, including the three-spined stickleback and eel.
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Vismigratievoorzieningen Noord-Oost Groningen (5 vispassages) (North-East Groningen fish migration structures (five fish passes))	The North-East Groningen fish migration structures project will include the construction of five fish passes that are intended to open up further the spawning and rearing grounds situated in the Eems-Dollard hinterland (in this case, polder and storage basin systems).
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Opening up and restoration of Sud Ie - De Kolken - North (two fish passes)	Lauwermeer - Sud Ie Friese storage basin fish migration connection
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Habitat Flora in beek (Habitat for flora in streams)	(Three kilometres in the Grote Masloot and the Eelderdiep);
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Dood hout in beken (Dead wood in streams)	Restoration of habitat for diadromous fish species in the Eelderdiep and Peizerdiep continues as part of the 'Dood hout in de beken' project. There are similar measures for the Ruiten Aa and Westerwoldse Aa systems
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Realisatie paai- en opgroeigebieden Reitdiepsysteem (19 km) (Creation of spawning and rearing grounds in the Reitdiep system (19 km);	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Herinrichting Eiland Amstelmeer (Redesign of the Amstelmeer Island)	
Ruim baan voor vissen 2 (Make Room for Fish 2) - Knowledge development and monitoring	Knowledge track 2b: Onderzoek effectiviteit vispassages en gemalen (Knowledge track 2b: Study into the effectiveness of fish passes and pumping stations)	The focus within this programme track in the coming years will be on establishing the extent of the damage caused by fish to the larger pumping stations along the coast and determining the effectiveness of fish passes in important migration routes in the hinterland.
Ruim baan voor vissen 2 (Make Room for Fish 2) - Knowledge development and monitoring	Knowledge track 2c: Onderzoek en monitoring migratieroutes achterland (Knowledge track 2c: Studying and monitoring of migration routes in the hinterland)	The focus within this programme track in the coming years will be on establishing spawning and rearing grounds already constructed in streams and polder and storage basin systems in recent years.
Ruim baan voor vissen 2 (Make Room for Fish 2) - Knowledge development and monitoring	Knowledge track 2d: Onderzoek en monitoring paai- en opgroeigebieden.(Knowledge track 2d: Studying and monitoring of spawning and rearing grounds.)	The focus within this programme track in the coming years will be on establishing the migration routes to the streams.
	Sud Ie Innovatieve Vismonitoring (Sud Ie Innovative Fish Monitoring)	Monitoring fish in the Sud Ie, between Lauwersmeer and Dokkum
	Wieringehoek	Wetland and intertidal areas in IJsselmeer off Den Oever
Vissen voor Verbinding (Fish for connectivity)	Vissen voor Verbinding (Fish for connectivity)	A better connection that will enable migratory fish to migrate between the Wadden Sea, the Lauwersmeer and the waters behind. This is the goal of the Vissen voor Verbinding project, an initiative involving a broad coalition of managers, government authorities and nature conservation organisations. The return of the iconic migratory fish, the sea trout, is a central focus of the project, although other fish, including the eel, ide and stickleback, will also benefit.
Vissen voor Verbinding (Fish for connectivity)	Paai- en opgroeigebied Runsloot (Runsloot spawning and rearing ground)	Create a natural design for the Runsloot upstream of the airport based on the 'Bach im Fluß' (stream in the river) principle, construct a fish pass next to the weir at the beginning of this section, and remove two weirs situated further upstream
Vissen voor Verbinding (Fish for connectivity)	Paai- en opgroeigebied Akkertocht (Akkertocht spawning and rearing ground)	Redesign of the upper course, possible removal of two dams and purchase of land, if necessary

Vissen voor Verbinding (Fish for connectivity)	Paai- en opgroei gebied Oostervoortschediep (Oostervoortschediep spawning and rearing ground)	Several sections of the stream (depending on the advice given) will be redesigned in accordance with the 'Bach im Fluß' principle
Vissen voor Verbinding (Fish for connectivity)	Uitzetten volwassen zeeforel Lauwersmeer (Releasing adult sea trout into the Lauwersmeer)	Uitzetten volwassen zeeforel in Lauwersmeer (Releasing adult sea trout into the Lauwersmeer)
Vissen voor Verbinding (Fish for connectivity)	VVV - Innovatieve monitoring migratiegedrag jonge zeeforel (VVV - Innovative monitoring of the migratory behaviour of young sea trout)	The released smolts will be monitored, including through the use of transmitters fitted to them, to see whether they are migrating successfully. Receivers will be placed at strategic points along the migration route towards the Lauwersmeer and the Wadden Sea to see where the smolts pass through and how long they take to do so, and also to see where they might take a 'wrong' turn.
Vissen voor Verbinding (Fish for connectivity)	VVV - Monitoring waterkwaliteit (VVV - Monitoring water quality)	The water quality in the streams will be analysed annually, as will the composition of the macrofauna. What are known as data loggers will be placed at various locations in the upper courses of the streams so that a few crucial parameters such as oxygen and temperature can be measured continuously. Data loggers will also be placed in the Lauwersmeer in order to measure the salt content.
Vissen voor Verbinding (Fish for connectivity)	VVV - uitzetten jonge zeeforel Peizerdiep (VVV - releasing young sea trout into the Peizerdiep)	Ten thousand sea trout hatchlings will be released into the upper courses of the Peizerdiep every year in the spring.
Vissen voor Verbinding (Fish for connectivity)	VVV - cursus 'natuurlijk schonen' (VVV - 'Natural Cleaning' course)	Large parts of the upper courses of the streams have been or are being redesigned. It is important to the natural development of those streams that maintenance is carried out properly. The management team of the Noorderzijlvest Water Board Project Group will therefore be sent on a 'natural cleaning' course.
Ruim baan voor vissen (Make Room For Fish)	Schildmeer spawning and rearing ground	The Duurswold area provides attractive spawning and rearing grounds now that they have been made accessible to migrating fish. The introduction of a number of ecological connection zones allows the exchange of species between the various nature conservation areas. Completed in 2014
Ruim baan voor vissen (Make Room For Fish)	Restauratie Oosterdijkshornerverlaat met vispassage (Restoration of the Oosterdijkshornerverlaat lock, including a fish pass)	The 'Oosterdijkshornerverlaat' lock at Ten Boer was restored. This was a special project because it involved not just the restoration of the lock, but also extensive adjustments for a fish pass. 2012
Ruim baan voor vissen (Make Room For Fish)	Vispassage Sans Souci (Sans Souci fish pass)	The Sans Souci pumping station is not yet passable by fish. Exchange between the sea, canals and nature conservation areas behind them is therefore minimal. The construction of this fish pass provides a solution. 2013
Ruim baan voor vissen (Make Room For Fish)	Paai- en opgroeiplaatsen Kouwe Vaart (Kouwe Vaart spawning and rearing grounds)	Wetterskip Fryslân is set to construct a nature-friendly bank alongside the Kouwe Vaart. That bank will provide a good habitat for fish. 2013
Ruim baan voor vissen (Make Room For Fish)	Vispassage Zwarte Haan (Zwarte Haan fish pass)	Wetterskip Fryslân is set to construct a fish pass at the pumping station in Zwarte Haan. This is intended to enable fish to once again swim from the Wadden Sea to the inland waters and vice versa.
Ruim baan voor vissen (Make Room For Fish)	Viskringloop Wieringenmeer (Wieringenmeer Fish Cycle)	Hollands Noorderkwartier Water Board (HHNK) is developing a unique area of more than 17 hectares to increase the spawning and rearing area for freshwater and saltwater migrating fish. The existing area will be converted into a 'Fish Cycle': a system of small dykes, banks and water up to a maximum depth of one metre.
Ruim baan voor vissen (Make Room For Fish)	Amstelmeerboezem - vispassages + visgeleiding (Amstelmeer storage basin - fish passes + fish guide way)	A fish pass is being constructed at the Balgdijk pumping station. Spawning and rearing grounds have been constructed at Lage Oude Veer, and it will be demarcated as an NEN area. 2015
Ruim baan voor vissen (Make Room For Fish)	Noordelijke Schermerboezem - vispassages + paai- en opgroeiplaatsen (northern part of the Schermerboezem (system of connected storage basins) - fish passes + spawning and rearing sites)	The Doggersvaart and the Scheidingsvliet canals are being made passable for fish with a culvert/non-return valve. The construction of five kilometres of spawning and rearing grounds is planned for the northern part of the Schermerboezem in order to provide resting and spawning sites for fish (especially along the busy North Holland Canal).
	Verbinding Ruiten Aa-Wester woldse Aa op Eems Dollard (Connection between the Ruiten Aa-Westerwoldse Aa to the Eems-Dollard)	Improvement of the connection with the Eems-Dollard (sea pumping stations only)

	Habitatherstel Ruiter Aa en Wester woldse Aa (Restoration of the Ruiter Aa and Westerwoldse Aa habitats)	Habitatherstel Ruiter Aa en Wester woldse Aa (Restoration of the Ruiter Aa and Westerwoldse Aa habitats)
HHNK Water Framework Directive programme	Aanleg vispassage Krassekeet/Binnenzwin Texel (Construction of a fish pass for Krassekeet/Binnenzwin, Texel)	Connection between the Noord Kanaal and the Kanaal Het Noorden
HHNK Water Framework Directive programme	Aanleg vispassage Genteweg Texel (Construction of a fish pass at Gentweg, Texel)	Kanaal Het Noorden
Waterplan Den Helder HHNK/gemeente (Den Helder HHNK/municipality water plan)	Scheiden van stromen polder Koegras Den Helder Zuid (Separation of flows from Polder Het Koegras and Den Helder Zuid)	Retain clean dune water and separate it from agricultural water. Construction of several weirs, including fish passes, for the target species eel and three-spined stickleback
HWBP (High Water Protection Programme)	Prins Hendrik Zanddijk, Texel	A solution involving sand was chosen for the reinforcement of the dyke
HHNK Water Framework Directive 3 programme	Onderzoek visveiligheid div gemalen (Study to determine fish safety at various pumping stations)	Including Wieringen
HHNK standard management	Aanleg div. visveilige gemalen en vispassages (Construction of various fish-friendly pumping stations and fish passes)	Including Wieringen
Natte Infra Noordkop (Noordkop Wet Infrastructure)	Stontelerkeersluis	fish pass
Natte Infra Noordkop (Noordkop Wet Infrastructure)	Aanleg paai- en opgroei gebieden Spuikanaal/Balgzandkanaal/Amstelmeerkanaal (Construction of spawning and rearing grounds at the Spuikanaal/Balgzandkanaal/Amstelmeerkanaal)	Fish-friendly banks will be constructed and plant-rich polder systems adjacent to the storage basin made accessible to diadromous fish species in order to create spawning and rearing grounds in polder and storage basin systems.
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Monitoring glasaal Waddenkust (Monitoring glass eel off the Wadden Sea coast)	Monitoring aanbod en intrek van glasaal op een aantal locaties aan de Waddenkust (Monitoring the presence and accumulation of glass eel at a number of locations on the Wadden Sea coast)
	Verbetering Natte Infrastructuur Noordkop (Improving the Noordkop Wet Infrastructure)	Verbinding en habitattherstel in kanaal en Amstelmeer, zoet-zoutovergang (Connection and habitat restoration in the channel and Amstelmeer, freshwater-saltwater transitional zone)
	Vispassage Den Oever (Den Oever fish pass)	A siphon/pipe connection between the Wadden Sea and the IJsselmeer.
The new Afsluitdijk	Vismigratierivier (fish migration river)	An artificial river against the Afsluitdijk, which forms a freshwater-saltwater transitional zone for migratory fish
The new Afsluitdijk	Vismigratierivier onderzoeksfaciliteit (Fish migration river research facility)	Research & effect monitoring regarding the fish migration river and the surrounding area
	WOT fuikmonitoring Kornwerderzand (Statutory research task - monitoring traps at Kornwerderzand)	Entry and exit monitoring by WON1 in spring and autumn
	Gemaal Vijfhuizen (Vijfhuizen pumping station)	A fish pass and tidal gully between the Wadden Sea and the storage basin
	Natuurambitie afsluitdijk (LEVVEL)(Nature ambition for the Afsluitdijk (LEVVEL))	Dyke reinforcement where nature, including underwater nature, in the bank is improved, where possible.
	Gemaal Harlingen (Harlingen pumping station)	Construction of a fish-friendly storage basin pumping station, creating a connection to the sea (via Harlingen sluices)
	Dijkversterking Koehool-Lauwersmeer (Koehool-Lauwersmeer dyke reinforcement)	Creation of a riparian habitat, brackish water areas and local freshwater-saltwater transitional zones
	Holwerd aan zee	Tidal lake within the dykes, fish migration connection to the Friesian Boezem and the Lauwersmeer, brackish water wildlife
Vissen voor Verbinding (Fish for connectivity)	Visvriendelijke aanpassingen R.J. Cleveringsluizen (Fish-friendly adjustments at R.J. Cleveringsluizen [sluices])	<i>Fish-friendly sluice management at Lauwerskust. At low tide, following an ebbing tide, there is a 15-minute window for fish to enter when the water is released.</i>
Vissen voor Verbinding (Fish for connectivity)	Vismigratievoorzieningen Robbegatsluis (Robbegatsluis fish migration structures)	Replace lock gates and fit rivets to new steel gates
	Naar een zilte Lauwerskust (Moving towards a salty Lauwerskust)	Survey of the large-scale freshwater-saltwater transitional zone in the Lauwersmeer for the benefit of nature, tourism and the economy
	Brakwatergebied Marnerwaard (Marnerwaard brackish water area)	Development of a freshwater-saltwater transitional zone within the Ministry of Defence area, with a connection to the Lauwersmeer, combined with dyke reinforcement
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Noordpolderzijl	Flushing lake in the area outside the dyke (between dykes) with a brackish water habitat - connection via pumping station? There is a connection, but it does not work well enough; the ambition is to create a flushing lake with good fish migration structures.



ED2050	Intergrale dijkversterkingen Eems Dollard (Comprehensive dyke reinforcements for the Eems-Dollard)	Dyke reinforcements which include the creation of brackish water habitat in the area outside the dyke by, among other things, forming wetland areas between the dykes
ED2050	Polder Breebaart	Polder situated between dykes, connected by a culvert to the Eems-Dollard. Saltwater/brackish water habitat. Pumping station with a fish pass
ED2050	Kustontwikkeling Eemzijen, zoet-zout overgangsgebied en spui omlegging (Coastal development of Eemzijen, freshwater-saltwater transitional zone and rearrangement of the sluice)	The Eemskanaal boat lock is barely passable, the pumping stations are passable for fish, the sluice is being relocated and water will discharge into the countryside surrounding Groningen by gravity flow (saltwater-saltwater transitional zone)
Vissen voor Verbinding (Fish for connectivity)	Monitoring visstand, aanbodonderzoek en overleving smolts – VVV (Monitoring fish stocks, study to establish the presence and survival rate of smolts - VVV)	Part of the Vissen voor Verbinding project - including a study to establish the availability of sluices on the Lauwerskust and monitoring the impact on habitat restoration in streams
Ruim baan voor vissen (Make Room For Fish)	Vispassages drie zeegemalen en achterliggende maatregelen (Creation of fish passes at three sea pumping stations and the measures in place to achieve this)	The project involves the construction of fish passes at the following locations: - Three sea pumping stations: Noordpolderzijl, Spijksterpompen and Drie Delfzijlen; - Five weirs in the hinterland: Wachter flood gate, Warffummervelaar level separation, Mugtilstuw, Wortelpotstuw and Pomphuisstuw. All the structures are located in North and Northeast Groningen.
Ruim baan voor vissen 2 (Make Room for Fish 2) - Knowledge development and monitoring	Kennislijn 2a: Monitoring visaanbod intrekpunten (Knowledge line 2a: Monitoring presence of fish and entry points)	Wadden Sea coast: The aim of this project is to gain a better picture and understanding of the distribution of fish along the coast. This is because at present, the distribution of species along the coast, and on what that depends, is not clear.
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Optimalisatie vismigratievoorzieningen (Optimising fish migration structures)	Wide-ranging programme as a follow-up to Ruim baan voor vissen, involving four water boards, Eems Vissen in Beeld, Noordkop, Lauwersmeer and several other measures aimed at optimising fish migration structures
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Verbeteren vispasseerbaarheid spuisluis Oostoever (Improve fish migration at the Oostoever sluice)	
Ruim baan voor vissen 2 (Make Room for Fish 2) - physical measures	Verbeteren visveiligheid gemaal Duurswold (Improve fish safety at the Duurswold pumping station)	
Ruim baan voor vissen 2 (Make Room for Fish 2) - Knowledge development and monitoring	Knowledge track 2e: Onderzoek brakwatergebieden en overgangen zoet-zout (Knowledge track 2e: Study of brackish water areas and freshwater-saltwater transitional zones)	In the coming years, focus within this programme track will be on the Vissen voor Verbinding project, Eemsvissen in Beeld and the Kop van Noord-Holland. The project will take place in conjunction with the Living Labs Vismigratie (Fish Migration Living Labs) project.
HWBP (High Water Protection Programme)	Nieuwbouw gemaal en vispassage De Cocksdorp Texel (Construction of a new pumping station and fish pass at De Cocksdorp, Texel)	One-sided fish pass + fish-friendly pumping station
HWBP (High Water Protection Programme)	Nieuwbouw gemaal en vispassage Dijkmanshuizen Texel (Construction of a new pumping station and fish pass at Dijkmanshuizen, Texel)	One-sided fish pass + fish-friendly pumping station
HWBP (High Water Protection Programme)	Nieuwbouw gemaal De Schans Texel (Construction of a new pumping station at De Schans, Texel)	Simply a fish-friendly pumping station allowing entry via Dijkmanshuizen
HHNK streefbeeld voor de boezem (HHNK targets for the storage basin)	"Brievenbussen" Vispassage gemaal De Helsdeur Den Helder ('Letterbox-style' fish pass at De Helsdeur pumping station, Den Helder)	Permanent open connection between the Wadden Sea and the Schermerboezem. Behoud van Brak and Vrij Verkeer voor Vissen targets
Natte Infra Noordkop (Noordkop Wet Infrastructure)	Gemaal Oostoever (Oostoever pumping station)	
Natte Infra Noordkop (Noordkop Wet Infrastructure)	Zoutwaterbarrière Kooijsluis (Kooijsluis saltwater barrier)	
Waddentools Swimway Waddenzee (Wadden Sea Swimway Wadden Tools)	Visvriendelijk spuien RJ Cleveringsluizen (Fish-friendly sluices at RJ Cleveringsluizen)	Fish-friendly sluices
	Zeegras Lauwersoog (Lauwersoog seagrass)	Sea grass development in the Wadden Sea, to the north of Lauwersoog
	Monitoring visstand, Waddenzee Vismonitor (Monitoring fish stocks, Wadden Sea Fish Monitor)	Long-term monitoring of fish stocks in the Wadden Sea by WV, SVN and NIOZ (Royal Netherlands Institute for Sea Research)
	Vismonitoring, Lauwersoog-Schiermonnikoog (Fish monitoring, Lauwersoog-Schiermonnikoog)	Long-term monitoring of the fish stocks in the Wadden Sea
	Demersal Fish Survey	Long-term monitoring (beam trawling in September)
	Pilot maandelijks vis-meting Waddenzee (Pilot project for the monthly measurement of fish stocks in the Wadden Sea)	Pilot project in 2020 (conducted by Waddenuit)

	Rol kwelder(beheer) voor vis (Role of salt marshes and salt marsh management for fish)	Impact of vegetation/water management in various salt marsh systems on their use by fish
	Vis-habitat interactie bij sublitorale schelpdierbanken (Fish habitat interaction in sublittoral shellfish beds)	Fish habitat interactions in shellfish beds (natural and actively restored mussel plots)
	Pelagische vis (omvang en positie in voedselweb) (Pelagic fish (number and position within the food web))	The position of pelagic fish is the big unknown and is not revealed by existing monitoring measures. Chart this group and relate the findings to discharge protocols, breeding success, etc.
	Grote vis – telemetrie (Large fish - telemetrics)	Vemco network in the western part of the Wadden Sea, fitting transmitters to sea bass, mullet, sea trout and tope shark
	Ontwikkelen voorspellend levenscyclus model (Develop predictive life cycle model)	Develop predictive model using new data from the project and other data streams
Ruim baan voor vissen 2 - Communicatie en draagvlak (Make Room For Fish 2 - Communication and support)	Programme track 3a: Kennisdelen en samenwerking (Programme track 3a: Knowledge sharing and collaboration)	Following on from RBvV 1, which primarily focused on collaboration and coordination between the water boards in the north of the Netherlands, the focus of this sub-programme in the coming years will be on collaboration and sharing knowledge with stakeholders and other parties.
Ruim baan voor vissen 2 - Communicatie en draagvlak (Make Room For Fish 2 - Communication and support)	Programme track 3b: Publicatie en voorlichting (Programme track 3b: Publication and information)	In the coming years, the focus will mainly be on keeping the present and future Ruim Baan voor Vissen website up to date and involving the public in monitoring activities.
Ruim baan voor vissen 2 - Communicatie en draagvlak (Make Room For Fish 2 - Communication and support)	Programme track 3c: Marketing en promotie (Programme track 3c: Marketing and promotion)	In the coming years, the focus will mainly be on fund-raising and co-financing a number of larger projects whose financing has not yet been finalised
Ruim baan voor vissen 2 - Management en coördinatie (Make Room for Fish 2 - Management and coordination)	Activities 4a: Programmering en aansturing (Activities 4a: Programming and management)	The focus within this work package in the coming years will be on setting up a project environment and developing with the Task Team an integrated approach on the basis of which new applications can be submitted to the Wadden Fund.
Ruim baan voor vissen 2 - Management en coördinatie (Make Room for Fish 2 - Management and coordination)	Activities 4b: Bewaken inhoudelijke en financiële voortgang (Activities 4b: Monitoring progress in terms of content and finance)	The focus within this work package in the coming years will be on setting up a financial project administration and making agreements with the Task Team on the desired level of detail and frequency of the progress reports to be delivered.
Ruim baan voor vissen 2 - Management en coördinatie (Make Room for Fish 2 - Management and coordination)	Activities 4c: Bewaken van de samenhang en samenwerking binnen het programma (Activities 4c: Monitoring (Monitoring coherence and collaboration within the programme)	The focus within this theme in the coming years will be on assessing each other's project proposals and results

© December 2021

OAK Consultants  
World Fishmigration Foundation

Commissioning parties  
Directorate-General for Public Works and Water Management  
Programme for a Health Wadden Sea (PRW)  
Wadden Sea Area Investment Framework (IKW)

Design  
Shapeshifter.nl