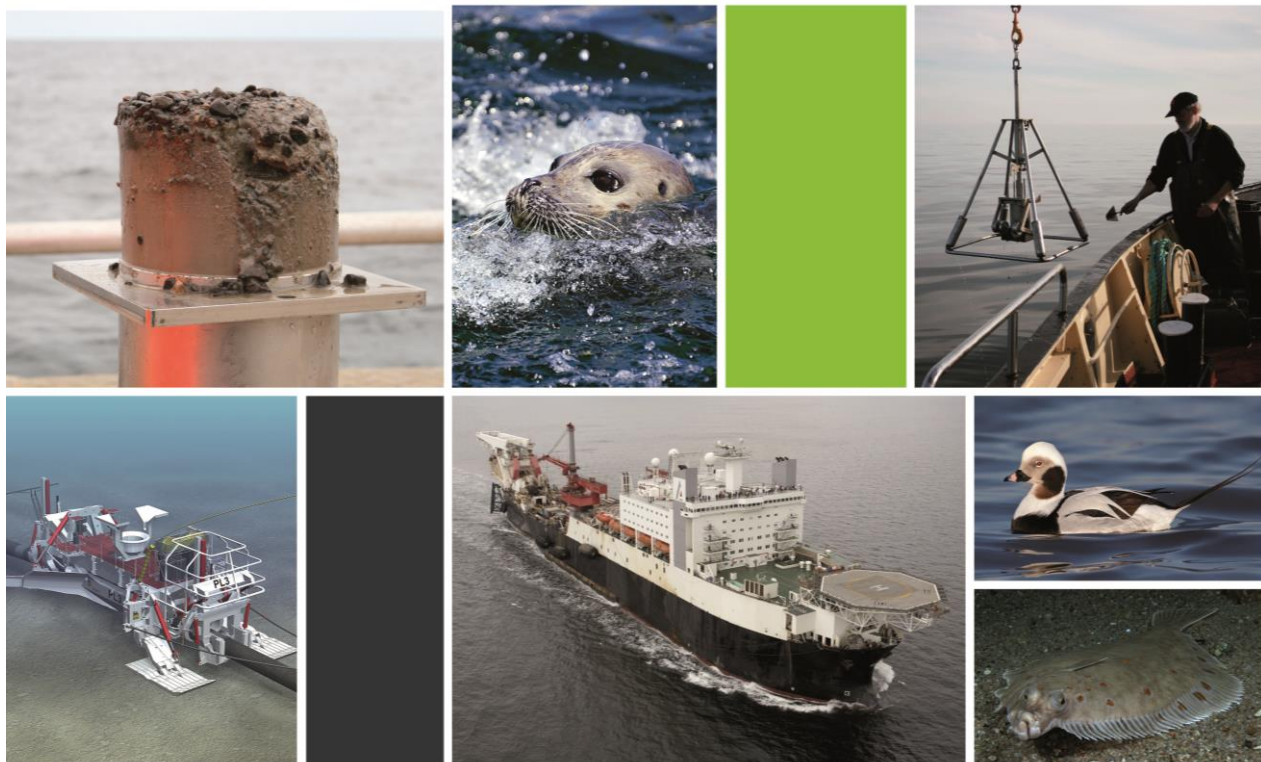


Nord Stream 2 AG

April 2019



# **NORD STREAM 2**

## **TRANSBOUNDARY**

## **IMPACTS**

### **ENVIRONMENTAL IMPACT**

### **ASSESSMENT, DENMARK,**

### **SOUTH-EASTERN ROUTE**

## TABLE OF CONTENTS

<b>1</b>	<b>TRANSBOUNDARY IMPACTS</b>	<b>1</b>
1.1	Transboundary impacts from planned activities within the Danish EEZ on regional or global receptors in the Baltic Sea	1
1.2	Transboundary environmental impacts from planned activities within the Danish EEZ on neighbouring countries	4
1.3	Transboundary environmental impacts from unplanned events within the Danish EEZ	9
1.4	Conclusion	10
	<b>REFERENCES</b>	<b>11</b>

# 1 TRANSBOUNDARY IMPACTS

NSP2 will cross the TW of Russia and Germany and will run within the EEZs of Finland, Sweden, Denmark and Germany. Potential transboundary impacts are discussed within this section in accordance with the requirements in the Convention on Environmental Impact Assessment in a Transboundary Context (henceforth referred to as the Espoo Convention).

The Espoo Convention requires international cooperation and public participation when a planned activity in one country, referred to as the "Party of Origin" (PoO), may result in significant adverse environmental impacts on another country, referred to as the "Affected Party" (AP).

The potential transboundary impacts have been described in the following sections divided into:

- Transboundary impacts from planned activities within the Danish EEZ on regional or global receptors in the Baltic Sea (see section 1.1);
- Transboundary impacts from planned activities within the Danish EEZ on neighbouring countries (see section 1.2);
- Transboundary impacts from unplanned events within the Danish EEZ (see section 1.3).

## 1.1 Transboundary impacts from planned activities within the Danish EEZ on regional or global receptors in the Baltic Sea

Some project activities within Danish waters may potentially affect receptors on a regional or global scale. This section assesses potential transboundary impacts with respect to these regional or global receptors in the Baltic Sea.

### 1.1.1 Hydrography

The marine environment in the Baltic Sea is heavily dependent on the occasional, major inflows of saline water through the Danish straits, as these are essentially the only means of water exchange in the bottom-close parts of the basins in the Baltic Proper. It is therefore essential to ensure that the inflow of oxygenated deep water to the inner parts of the Baltic Sea via the Bornholm Basin is not negatively affected by the presence of the pipeline.

Due to the potential effect on the Baltic Sea ecosystem, the effect of the pipeline structure on water flow patterns and sediment accretion/erosion has been studied for NSP and NSP2. The NSP pipelines, the proposed NSP2 route, the NSP2 route V1 and the NSP2 route V2 do not pass through the Bornholm Strait or the Stolpe Channel, the main gateways for inflowing seawater to the Baltic Proper. A thorough review of the hydrographic impacts on the Baltic Proper for NSP and NSP2 concluded that there would be no impacts on hydrographical bulk flow /1//2/, and impacts on hydrography were therefore assessed to be negligible.

The mean height of the pipelines above the seabed was assumed to be 1.4 m, as a conservative assumption for the theoretical analysis. Analysis of the embedment of the NSP pipeline in Danish waters showed that five years after installation, the pipeline was embedded at least 50% in most locations.

A hydrographic monitoring programme was carried out in the Bornholm Basin for the existing NSP route in order to verify the assumptions for the theoretical analysis of the possible blocking and mixing effects of the water inflow to the Baltic Sea caused by the presence of NSP /1//2/. The results of this monitoring suggest that the mixing caused by the pipelines in the Bornholm Basin were considerably below any level of effect that could be measured.

Potential impacts from the presence of the pipelines on hydrography during the operational phase are assessed to be local, long-term, and of low intensity, and the overall significance is assessed

to be negligible. In conclusion, there are no significant transboundary impacts on the Baltic Sea caused by the presence of the pipelines and altered hydrography in Danish waters.

### **1.1.2 Climate**

The marine emissions of CO<sub>2</sub> during construction of NSP2 in Danish waters will temporarily increase the total annual emissions of CO<sub>2</sub> from vessels in Denmark. The total load of CO<sub>2</sub> is predicted to comprise approximately 97,423 t during construction (assuming the combination of the proposed NSP2 route with V2 is implemented), corresponding to approx. 3.8% of the total annual Danish emissions of CO<sub>2</sub> caused by shipping in 2016. The total load of CO<sub>2</sub> during 50 years of operation will amount to 33,667 t (assuming the combination of the proposed NSP2 route with V2 is implemented), which corresponds to 1.3% of the total annual Danish emissions of CO<sub>2</sub> caused by shipping in 2016. Should the combination of the proposed NSP2 route with V1 be implemented, CO<sub>2</sub> emissions are expected to be slightly lower, due to the shorter length of the alignment. Although CO<sub>2</sub> emissions in general have an impact on a global scale, the increased emissions during the construction and operational phases in Denmark are not anticipated to have a quantifiable impact on the global climate, and therefore no significant transboundary impacts are expected.

The marine emissions of NO<sub>x</sub>, SO<sub>2</sub> and particulate matter during construction and operation in Danish waters will temporarily reduce the air quality in areas near the vessels. However, the construction and operational activities will take place offshore, meaning that the emissions will be dispersed and diluted to a level that is not quantifiable and no significant transboundary impacts are therefore expected.

### **1.1.3 Fish**

The NSP2 route V1 and the NSP2 route V2 pass through an important area of fishery within the Danish and Swedish EEZs that is closed for fishing between 1 May and 31 October to enable undisturbed cod spawning and to avoid catches of fish before they have spawned. The main spawning grounds for cod are within the Bornholm Deep.

The water mass where cod spawning may take place, i.e. the reproductive layer, is confined to water depths of approximately 42-68 m. The NSP2 route V1 crosses this area within Danish waters over a distance of approximately 33 km, and at a water depth of 80-90 m. The NSP2 route V2 crosses the cod spawning closure area within Danish waters for a distance of approximately 38 km, and at a water depth of 80-90 m. Suspended sediments caused by construction activities will be limited to the lower 10 m of the water column and will not reach the reproductive volume. Moreover, the size of the area where NSP2 will be constructed is negligible compared to the total size of the area closed for fishery due to spawning of cod.

Therefore, it is assessed that there will be no significant transboundary impacts on Baltic Sea fish caused by the NSP2 project in the cod spawning area in Danish waters.

### **1.1.4 Natura 2000 sites**

As well as being important at the individual level, Natura 2000 sites together form a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types. When considering impacts on such sites, it is thus necessary to ensure that the sites are safeguarded at both the individual and network levels to ensure that the coherence and functioning of the overall network is maintained. Such a network in relation to NSP2 covers the Baltic Sea and is hence transboundary and regional in nature.

The assessment of potential impacts on Danish Natura 2000 sites (the Natura 2000 screening for Natura 2000 site no. N252, Adler Grund and Rønne Banke (reefs and sandbanks)) has demonstrated that there will be no risk of significant or adverse impact on the designated species or habitats, and there will thus be no significant impacts on the integrity of the Natura 2000 sites.

N252 is the only Danish Natura 2000 site within 20 km of the proposed pipeline route. A distance of 20 km from the proposed NSP2 route, the NSP2 route V1 or the NSP2 route V2 was selected based on professional judgement and experience from NSP regarding the potential for impact on Natura 2000 sites from construction and operational activities.

Therefore, the coherence of the Natura 2000 network, including spatial and functional connections, will not be affected.

#### **1.1.5 Marine biodiversity**

Potential impacts on marine biodiversity have been assessed and it is concluded that NSP2 will not result in significant impacts on species (at the individual or population level), habitats or the integrity of protected areas during the construction and operational phases. Impacts at individual and population levels are generally assessed to be negligible, except for a minor impact on marine mammals due to underwater noise (during construction) and a minor impact on the benthic environment caused by change of habitat (during operation).

With due consideration of the above, it has been assessed that impacts at either the species or habitat level during construction and operation of NSP2 would not combine to result in impacts which would be sufficient to cause a change in biodiversity or ecosystem functioning.

Therefore, it is assessed that there will be no significant transboundary impacts on Baltic Sea biodiversity caused by the NSP2 project in Danish waters.

#### **1.1.6 Shipping and shipping lanes**

In Danish waters, the proposed NSP2 route, the NSP2 route V1 and the NSP2 route V2 will run east and south of Bornholm, avoiding the heavily trafficked TSS Bornholmsgat. The only area with high ship traffic intensity is where NSP2 crosses the TSS Adlergrund in the Danish and German EEZs, which has approximately 7,000 ship movements per year /3/.

Safety exclusion zones will be implemented around slow-moving construction vessels. Only vessels involved in the construction of NSP2 will be allowed inside the safety zone; therefore, all other vessels not involved in construction activities will be requested to plan their journeys around the safety zone.

The shipping lanes crossed by the proposed NSP2 route, the NSP2 route V1 and the NSP2 route V2 in Danish waters provide sufficient space and water depth for ships to plan their journey and safely navigate around possible temporary obstructions. The impact on ship traffic associated with the imposition of a safety zone is assessed to be minor and associated with local and temporary changes to the traffic scheme.

Therefore, it is assessed that there will be no significant transboundary impacts on Baltic Sea ship traffic caused by the NSP2 project in Danish waters.

#### **1.1.7 Fisheries**

Commercial fishery in Danish waters comprises both Danish fishing boats and fishing boats of other countries bordering the Baltic Sea.

As mentioned above, safety exclusion zones will be implemented around slow-moving construction vessels. Only vessels involved in the construction of NSP2 will be allowed inside the safety zone; therefore, all other vessels not involved in construction activities (e.g. fishing vessels) will be required to plan their journeys around the safety zone. Due to the local and temporary nature of the impact and given the availability of alternative fishing grounds that can provide the same service, the impacts have been assessed to be negligible.

During operation, the physical presence of pipelines and structures on the seabed has the potential to impact fishing activities either through the imposition of protection zones (loss of opportunity) or through obstruction (additional effort and potential damage or loss of gear). The NSP2 pipelines have been designed to be resistant to impacts from any interaction with fishing gear and Nord Stream 2 AG will apply for a dispensation to remove any fishery restriction zone around the pipelines to allow fishing activities during the operation of the pipeline. Experience from the existing NSP pipelines has demonstrated that fishermen can coexist with the pipeline system, and since installation of the NSP pipelines, no fishery gear has been reported lost or damaged. Therefore, the impact on fishery is assessed to be minor, and there will be no significant transboundary impacts on Baltic Sea fishery caused by the NSP2 project in Danish waters.

#### **1.1.8 Marine strategic planning**

There are a number of EU legislative tools designed to protect the marine environment and create a framework for the sustainable use of the marine waters in the Baltic Sea. These include the MSFD and WFD, which are applicable to all EU Member States. The BSAP is also relevant to the area impacted by NSP2. No potentially significant transboundary impacts that have the potential to affect compliance with the EU Directives are predicted. Therefore, NSP2 will not prevent any EU Baltic State from achieving GES for any MSFD descriptor or the WFD. Furthermore, NSP2 will not prevent any country from reaching the targets set out in the BSAP.

## **1.2 Transboundary environmental impacts from planned activities within the Danish EEZ on neighbouring countries**

This section assesses potential transboundary impacts from construction in Denmark on each neighbouring country in which these impacts may occur. During the operational phase, the only potential transboundary impacts are impacts on regional or global receptors in the Baltic Sea, which are evaluated in section 1.1.

The assessment of the potential for transboundary impacts considers the proximity of the NSP2 route, the NSP2 route V1 and the NSP2 route V2 to the neighbouring countries as well as the nature of the impacts. Where the NSP2 route, NSP2 route V1 and NSP2 route V2 run close to the Swedish, German and Polish EEZs, construction activities may potentially cause transboundary impacts on Sweden, Germany and Poland. These impacts are evaluated in sections 1.2.1, 1.2.2 and 1.2.3, respectively.

### **1.2.1 Transboundary impacts on Sweden**

In the northernmost part of the Danish sector, the NSP2 route V1 and the NSP2 route V2 join together and enter the Swedish EEZ from the Danish EEZ at the same location. The environmental conditions on both sides of the Danish-Swedish EEZ border are quite similar. Specifically, the water depth at the border of the Danish and Swedish EEZs where the routes are planned is approximately 80 m, and the seabed sediment consists of mud, silt and fine clay. Furthermore, no seabed intervention works are planned along either route alternative near the Swedish EEZ. As such, the NSP2 route V1 and the NSP2 route V2 are referred to collectively in the assessment below as the "NSP2 route".

During the construction phase, activities such as pipe-lay, post-lay trenching and spot rock placement will lead to physical disturbance, release of seabed sediments, noise and emissions, which may result in transboundary impacts.

*Release of sediments and sedimentation*

Local impacts on the seabed and the marine benthos in the Swedish EEZ are expected due to the release of sediments and sedimentation during pipe-lay in Denmark close to the EEZ border between Denmark and Sweden. No seabed interventions are planned in the area close to the Swedish EEZ, and pipe-lay will not result in significant sediment spread. Furthermore, identical impacts originating in the Swedish EEZ are expected in the Danish EEZ during pipe-lay activities in the Swedish EEZ close to the Danish EEZ. The impacts are highly localised at the EEZ border and assessed to be of negligible significance.

Construction activities, mainly post-lay trenching and rock placement, will result in the release of sediment into the water column. The distance between the closest section for post-lay trenching/rock placement in Denmark to the Swedish EEZ is more than 100 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed in order to assess the sediment dispersion from post-lay trenching and rock placement within the Danish EEZ. The modelling results indicate that in connection with post-lay trenching, an area of 12.9 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 4.5 hours. In connection with rock placement, an area of 0.04 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 0.5 hours. The modelling results thus indicate that the majority of the suspended sediment will redeposit locally, and that increased concentrations of suspended sediment will be local and temporary. Subsequent sedimentation is assessed to be local and of low intensity.

The release of sediments can result in release of contaminants associated with the sediment, including metals, organic contaminants, nutrients (N and P), and hydrogen sulphide. Remobilisation and redistribution of CWA and contaminants during construction activities are assessed to potentially occur in the close vicinity of the proposed pipeline, where the sediment is disturbed. Calculations and modelling have been undertaken for the release of contaminants into the water column through post-lay trenching and rock placement. Levels of contaminants in the water corresponding to concentrations of suspended sediment of 2 mg/l (relevant for rock placement and trenching) and 15 mg/l (relevant for trenching only) were calculated assuming that the concentration of each contaminant in the sediment equals the highest measured concentration in the area. Based on the modelling of sediment dispersion and the distance to Swedish waters (more than 100 km to the closest section where spot rock placement is planned), it is assessed that there will be no significant transboundary impacts (e.g. on water quality or benthos) in Swedish waters due to sediment dispersion and the potential release of contaminants.

#### *Generation of underwater noise*

Rock placement is considered to be the noisiest of construction activities within Danish waters and was therefore the focus of underwater noise modelling. The distance between the closest section for rock placement in Denmark to the Swedish EEZ is more than 100 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed for underwater noise from the rock placement at this location. The modelling has been undertaken for two scenarios (winter and summer conditions), and it has been concluded that no significant sound levels above ambient level will reach the Swedish EEZ.

#### *Imposition of safety zones around vessels*

There are no major shipping routes or TSS in Danish waters near the area where the proposed NSP2 route crosses from the Swedish EEZ to the Danish EEZ. As the majority of ships follow pre-designated routes that are static and in accordance with existing TSS, it is therefore assessed that there will be no transboundary impacts on Sweden caused by the imposition of safety zones around vessels.

#### *Protected areas*

No parts of the NSP2 pipeline within the Danish EEZ are close to protected environmental areas inside the Swedish EEZ. The shortest distance to a Swedish Natura 2000 site is 30 km. As described above, the distances between the activities in Danish waters and protected areas within the Swedish EEZ are such that no transboundary impacts on protected areas in Sweden have been identified.

#### *Conclusion*

In conclusion, it is assessed that there will be no significant transboundary impacts on Sweden from the construction or operation of NSP2.

### **1.2.2 Transboundary impacts on Germany**

In the southernmost part of the Danish sector, the proposed NSP2 route enters the German EEZ from the Danish EEZ. The environmental conditions on both sides of the Danish-German EEZ border are quite similar. Specifically, the water depth at the border of the Danish and German EEZs where the route is planned is approximately 30 m, and the seabed sediment consists mainly of sand. Furthermore, the same seabed intervention works are planned near the German EEZ regardless of which route alternative is selected. As such, the NSP2 route V1 and the NSP2 route V2 are referred to collectively in the assessment below as the "NSP2 route".

During the construction phase, activities such as pipe-lay, post-lay trenching and spot rock placement will lead to physical disturbance, release of sediments, noise and emissions, which may result in transboundary impacts.

#### *Release of sediments and sedimentation*

Local impacts on the seabed and the marine benthos in the German EEZ are thus expected due to release of sediments and sedimentation during pipe-lay in Denmark close to the EEZ border between Denmark and Germany. Identical impacts originating in the German EEZ are expected in the Danish EEZ during pipe-lay activities in the German EEZ close to the Danish EEZ. The impacts are highly localised at the EEZ border and assessed to be of negligible significance.

Construction activities, mainly post-lay trenching and rock placement, will result in the release of sediment into the water column. The distance between the closest section for post-lay trenching/rock placement in Denmark to the German EEZ is approximately 9 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed in order to assess the sediment dispersion from post-lay trenching and rock placement within the Danish EEZ. The modelling results indicate that in connection with post-lay trenching, an area of 12.9 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 4.5 hours. In connection with rock placement, an area of 0.04 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 0.5 hours. The modelling results thus indicate that the majority of the suspended sediment will redeposit locally, and that increased concentrations of suspended sediment will be local and temporary. Subsequent sedimentation is assessed to be local and of low intensity.

The release of sediments can result in release of contaminants associated with the sediment, including metals, organic contaminants, nutrients (N and P), and hydrogen sulphide. Remobilisation and redistribution of CWA and contaminants during construction activities are assessed to potentially occur in the close vicinity of the proposed pipeline, where the sediment is disturbed. Calculations and modelling have been undertaken for the release of contaminants into the water column through post-lay trenching and rock placement. Levels of contaminants in the water corresponding to concentrations of suspended sediment of 2 mg/l (relevant for rock placement and trenching) and 15 mg/l (relevant for trenching only) were calculated assuming that the concentration of each contaminant in the sediment equals the highest measured concentration in the area. However, it is noted that the concentrations of heavy metals and organic contaminants in the sediments are



generally much lower in the area where the route enters the German EEZ than in the deeper parts of the route, and potential transboundary impacts correspondingly smaller. Based on modelling of sediment dispersion and the distance to German waters (approx. 9 km to the closest section where spot rock placement is planned at the NSP crossing), it is assessed that there will be no significant transboundary impacts (e.g. on water quality or benthos) in German waters due to sediment dispersion and the potential release of contaminants.

#### *Generation of underwater noise*

Rock placement is considered to be the noisiest of construction activities within Danish waters and was therefore the focus of underwater noise modelling. The distance between the closest section for rock placement in Denmark to the German EEZ is approximately 9 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed for underwater noise from the rock placement activities at this location. The modelling has been undertaken for two scenarios (winter and summer conditions), and it has been concluded that no significant sound levels above ambient level will reach the German EEZ. Furthermore, the threshold distances for TTS in marine mammals and fish have been assessed to be 80 m and 100 m, respectively. As such, rock placement within Danish waters is not expected to cause TTS-related impacts on marine mammals or fish within the German EEZ.

#### *Imposition of safety zones around vessels*

The proposed pipeline route crosses the TSS Adlergrund at the border between the Danish and German EEZs. In this area, safety exclusion zones around the slow-moving construction vessels will extend into the German EEZ during pipe-lay in Denmark close to the EEZ border between Denmark and Germany. This will impose a minor restriction on the east bound traffic in the shipping lane located in the German EEZ. The restriction will extend from the traffic separation zone in the middle of the TSS area and into the one-directional shipping lane, with a total width of 4 km. In any situation, there will be a free width of more than 2 km for safe navigation in the east bound lane. The impact on ship traffic in the German EEZ is therefore assessed to be minor and no significant transboundary impact is therefore expected. Identical impacts originating in the German EEZ are expected in the Danish EEZ during pipe-lay activities in the German EEZ close to the Danish EEZ.

#### *Protected areas*

There is a designated German Natura 2000 site where the pipeline route enters the German EEZ. As described above, local impacts on resources and receptors in the German EEZ due to construction activities in the Danish EEZ will be highly localised at the EEZ border and are assessed to be of negligible significance. Furthermore, the distance between the closest section for post-lay trenching/rock placement in Denmark to the German Natura 2000 site is approximately 9 km. As discussed above, any potential impact is assessed to be temporary, local and of low intensity. No significant impacts on German Natura 2000 sites have been identified in association with activities in the Danish sector.

#### *Conclusion*

In conclusion, it is assessed that there will be no significant transboundary impacts on Germany from the construction or operation of NSP2.

### **1.2.3 Transboundary impacts on Poland**

The route does not enter the Polish EEZ, and the shortest distance from the pipeline to the Danish/Polish EEZ border is approximately 7.0 km for the combination of the proposed NSP2 route with V1 and approximately 3.6 km for the combination of the proposed NSP2 route with V2.

During the construction phase, activities such as pipe-lay, post-lay trenching and spot rock placement will lead to physical disturbance, release of seabed sediments, noise and emissions, which may result in transboundary impacts.

#### *Release of sediments and sedimentation*

Construction activities, mainly post-lay trenching and rock placement, will result in the release of sediment into the water column. The distance between the closest section for post-lay trenching/rock placement in Denmark to the Danish/Polish EEZ border is approximately 7 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed in order to assess the sediment dispersion from post-lay trenching and rock placement within the Danish EEZ. The modelling results indicate that in connection with post-lay trenching, an area of 12.9 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 4.5 hours. In connection with rock placement, an area of 0.04 km<sup>2</sup> may be affected by a suspended sediment concentration of >2 mg/l for a period of up to 0.5 hours. The modelling results thus indicate that the majority of the suspended sediment will redeposit locally, and that increased concentrations of suspended sediment will be local and temporary. Subsequent sedimentation is assessed to be local and of low intensity.

The release of sediments can result in release of contaminants associated with the sediment, including metals, organic contaminants, nutrients (N and P), and hydrogen sulphide. Remobilisation and redistribution of CWA and contaminants during construction activities are assessed to potentially occur in the close vicinity of the proposed pipeline, where the sediment is disturbed. Calculations and modelling have been undertaken for the release of contaminants into the water column through post-lay trenching and rock placement. Levels of contaminants in the water corresponding to concentrations of suspended sediment of 2 mg/l (relevant for rock placement and trenching) and 15 mg/l (relevant for trenching only) were calculated assuming that the concentration of each contaminant in the sediment equals the highest measured concentration in the area. Based on modelling of sediment dispersion and the distance to Polish waters (approx. 7 km to the closest section where spot rock placement is planned), it is assessed that there will be no transboundary impacts (e.g. on water quality or benthos) in Polish waters due to sediment dispersion and the potential release of contaminants.

#### *Generation of underwater noise*

The distance between the closest section for post-lay trenching/rock placement in Denmark to the Danish/Polish EEZ border is approximately 7 km, with rock placement planned where the NSP2 pipelines will cross the existing NSP pipelines. Numerical modelling has been performed for underwater noise from the rock placement activities at this location. The modelling has been undertaken for two scenarios (winter and summer conditions), and it has been concluded that no significant sound levels above ambient level will reach the Polish EEZ. Furthermore, the threshold distances for TTS in marine mammals and fish have been assessed to be 80 m and 100 m, respectively. As such, rock placement within Danish waters is not expected to cause TTS-related impacts on marine mammals or fish within the Polish EEZ.

#### *Imposition of safety zones around vessels*

Due to the distance from the proposed pipeline route to the Polish EEZ, it is assessed that there will be no transboundary impacts on Poland caused by the imposition of safety zones around vessels. Furthermore, it is noted that there are no major shipping lanes between Denmark and Poland that will be impacted by the NSP2 route, the NSP2 route V1 or the NSP2 route V2.

#### *Protected areas*

No parts of the NSP2 pipeline within the Danish EEZ are close to protected environmental areas inside the Polish EEZ. The shortest distance to a Polish Natura 2000 site is 54 km for the combination of the proposed NSP2 route with V1, or 34 km for the combination of the proposed NSP2 route with V2. As described above, the distances between the activities in Danish waters and protected areas within the Polish EEZ are such that no transboundary impacts on protected areas in Poland have been identified.

#### *Conclusion*

In conclusion, it is assessed that there will be no significant transboundary impacts on Poland from the construction or operation of NSP2.

### **1.3 Transboundary environmental impacts from unplanned events within the Danish EEZ**

Potential unplanned events could include, e.g., an oil spill following a ship collision or a gas leakage.

#### **1.3.1 Risk and transboundary impacts from oil spill**

Depending on where a ship collision with consequent oil spill occurs (i.e. inside or outside Danish waters), there may be a risk of transboundary impacts. The risk is low, but if a larger oil spill occurs, the impacts on the marine environment could be significant, depending on when contingency measures are initiated.

In HELCOM Recommendation 11/13, it is recommended that Governments of the Contracting Parties to the Helsinki Convention should, in establishing national contingency plans, aim at developing the ability of their combating services:

- To deal with spillages of oil and other harmful substances at sea so as to enable them:
  - To keep a readiness permitting the first response unit to start from its base within two hours after having been alerted;
  - To reach within six hours from start any place of spillage that may occur in the response region of the respective country;
  - To ensure well-organized, adequate and substantial response actions on the site of the spill as soon as possible, normally within a time not exceeding 12 hours.
- To respond to major oil spillages:
  - Within a period of time normally not exceeding two days of combating the pollution with mechanical pick-up devices at sea; if dispersants are used it should be applied in accordance with HELCOM Recommendation 1/8, taking into account a time limit for efficient use of dispersants;
  - To make available sufficient and suitable storage capacity for disposal of recovered or lighter oil within 24 hours after having received precise information on the outflow quantity.

Based on HELCOM Recommendation 11/13, it is therefore assumed that countries around the Baltic Sea are capable of controlling a major oil spill within two days of a release, and thereby impacts on the marine environment, both regional and transboundary, will be minimised.

It is noted that Nord Stream 2 AG has produced an Oil Spill Contingency Plan (OSCP), which is a contingency for Tier 2 and Tier 3 spills. The OSCP sets out emergency procedures to enable assessment of the spill and mobilization of appropriate response procedures. Contractors are responsible for responding to Tier 1 oil spills, and to this end all contractors are required to have an approved Shipboard Oil Pollution Emergency Plan (SOPEP) and equipment on board.

### **1.3.2 Risk and transboundary impacts from gas release**

The probability of a gas release is extremely low. Based on an assessment of different scenarios for gas release, it is assessed that a gas release may be a safety issue for ship traffic, but will not pose a threat to the safety of people on Bornholm or on the German, Swedish or Polish coasts.

The impact will depend on the type of leak, its magnitude and the type of repair required. Depending on the location where a gas release occurs, i.e. inside or outside Danish waters, there may be transboundary impacts. The impacts on the marine environment would be local and of a relatively short duration, while the impacts on ship traffic (i.e. changing shipping routes) would be of a longer duration, owing to safety exclusion zones around repair locations that will be of the same extent as exclusion zones during the construction phase.

The transboundary impacts from a gas release would primarily be related to the emission of methane to the air, as methane is a greenhouse gas that is present across all countries and contributes to climate change.

## **1.4 Conclusion**

In general, it is assessed that there will be no significant transboundary impacts from the NSP2 project activities within Danish waters on neighbouring countries. This conclusion is in line with the monitoring results during construction and the first years of the operation of the existing NSP pipelines in Danish waters.

Where the pipelines enter the German and Swedish EEZs, the nature and magnitude of the potential environmental impacts arising from the activities within the Danish EEZ, which have the potential to affect these countries are of the same nature, but of a significantly smaller magnitude than those resulting from similar construction activities within the German and Swedish EEZs, respectively. No significant transboundary impacts on Poland have been identified.

It is further assessed that NSP2 project activities in Danish waters will not lead to any significant transboundary impacts on a regional or global level.

The construction and operation of the NSP2 pipelines within the Danish EEZ will have no significant impact on protected areas, including internationally protected areas (i.e. Natura 2000 sites, Ramsar sites). Therefore, the coherence of the Natura 2000 network, including spatial and functional connections, will not be affected.

## REFERENCES

- /1/ Borenäs, K. and Stigebrandt, A., **2009**, "Possible hydrographical effects upon inflowing deep water of a pipeline crossing the flow route in the Bornholm Proper", SMHI and University of Gothenburg. Scientific review by Jacob Steen Møller, Technical University of Denmark.
- /2/ Ramboll O&G / Nord Stream AG, **2011**, "Hydrographic monitoring in the Bornholm Basin 2010 – 2011" (Ed: Anders Stigebrandt). Doc. No. G-PE-PER-MON-100-04090000-A, June.
- /3/ Ramboll, **2016**, "NSP2 Ship traffic background report". Doc. No. W-PE-EIA-POF-REP-805-060100EN-04, June.