

# E40 waterway would lead to droughts, and destroy rivers and wildlife in Poland

*Study reveals potential impacts of proposed E40 waterway on hydrology, and river and water ecology in Poland*



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## Summary

As part of the E40 waterway development, three possible approaches to the construction of a new channel in Poland have been identified by a 2015 feasibility study<sup>1</sup>. The channel would connect the Vistula river and the town of Terespol. All variants of the channel slice through sensitive natural areas high in biodiversity. Experts analysed potential impacts of the channel. They considered the hydrological, geographical, and environmental threats posed by the E40 waterway on the regional water management and environmental management issues in Poland.

### They found that:

- A massive amount of water would be required for the channel to function – in one variant this amount has been significantly underestimated by the 2015 feasibility study<sup>1</sup>.
- There are few viable water sources to fuel the E40 waterway; use of water from key rivers would require costly uphill pumping.
- The channel would have a severe negative impact on river water resources, reduce overbank flows, and significantly increase drought periods.
- The channel would drain local groundwater in many sections, and could have severe negative consequences for local agriculture, households, and the environment.
- There would be significant negative impacts on key habitats such as peatland and species such as the aquatic warbler.
- There would likely be damage to the ecological status of rivers, primarily due to water shortages.

## Background: Polesia and the E40 waterway

Polesia is a vast wilderness area stretching across Belarus, Poland, Russia and Ukraine<sup>2</sup>. The E40 waterway<sup>3</sup> is a transnational initiative aiming to link the Baltic and Black Seas by an approximately 2,000 km long navigable connection running from Gdansk in Poland to Kherson in Ukraine. This could have very serious impacts on the natural and cultural heritage and people of Polesia, as well as more wide-ranging effects on economies and the global carbon balance.

Although the planning of E40 waterway is still at an early stage, a feasibility study was published in 2015<sup>1</sup>. This proposes that the route would go through the river systems of Vistula, Bug, Pina, Pripyat and Dnieper (see figure 1). Along the majority of its course it would go through free-flowing rivers, and several parts would need to be straightened, dammed, dredged, or drained. While some shipping channels already exist, the extent of the proposed new development is so massive that it threatens an environmental catastrophe in the region.

<sup>1</sup> Maritime Institute in Gdansk (2015) Restoration of Inland Waterway E40 Dnieper –Vistula: from Strategy to Planning. Final Feasibility Study Report – Corrected Report (According to the remarks and requirements introduced by Willem Zondag, Legal and Technical Consultant). Gdansk, December 2015.

<sup>2</sup> See factsheet "About Polesia – A unique wilderness of global importance"

<sup>3</sup> See factsheet "Polesia under threat – How a new waterway could destroy Polesia's natural environment"

The Belarusian stretch of the canal would run along the Mukhavets river, the Dnieper-Bug canal, Pina river, and Pripjat river to the Belarusian-Ukrainian border. Although parts of the Belarusian stretch of the E40 waterway would run through the navigable canal, vast parts of the course of the planned waterway cuts through a heavily meandering stretch of the Pripjat. The 2015 feasibility study also details three possible approaches to construct a new channel in Poland linking the Vistula river and the town of Terespol on the Bug and Mukhovets rivers (see figures 1 and 2).

Variant 1 (V1) would involve the construction of a new channel of around 200km, running south of the River Bug. Variant 2 (V2) would, in part, follow the course of the Wilga river and have a length of just under 200km. Variant 3 (V3) would follow a longer stretch of the Vistula river, followed by part of the Wieprz river – at roughly 160km it is the shortest of the three routes.

A more detailed feasibility study is now being undertaken on the E40 route in Poland. While not yet finalised, interim information from the Polish feasibility study published in March 2020 is recommending a route based on variant 3, with three differing options of this variant currently being investigated further<sup>4</sup>. All three of these options would be extremely damaging to nature<sup>5</sup>.

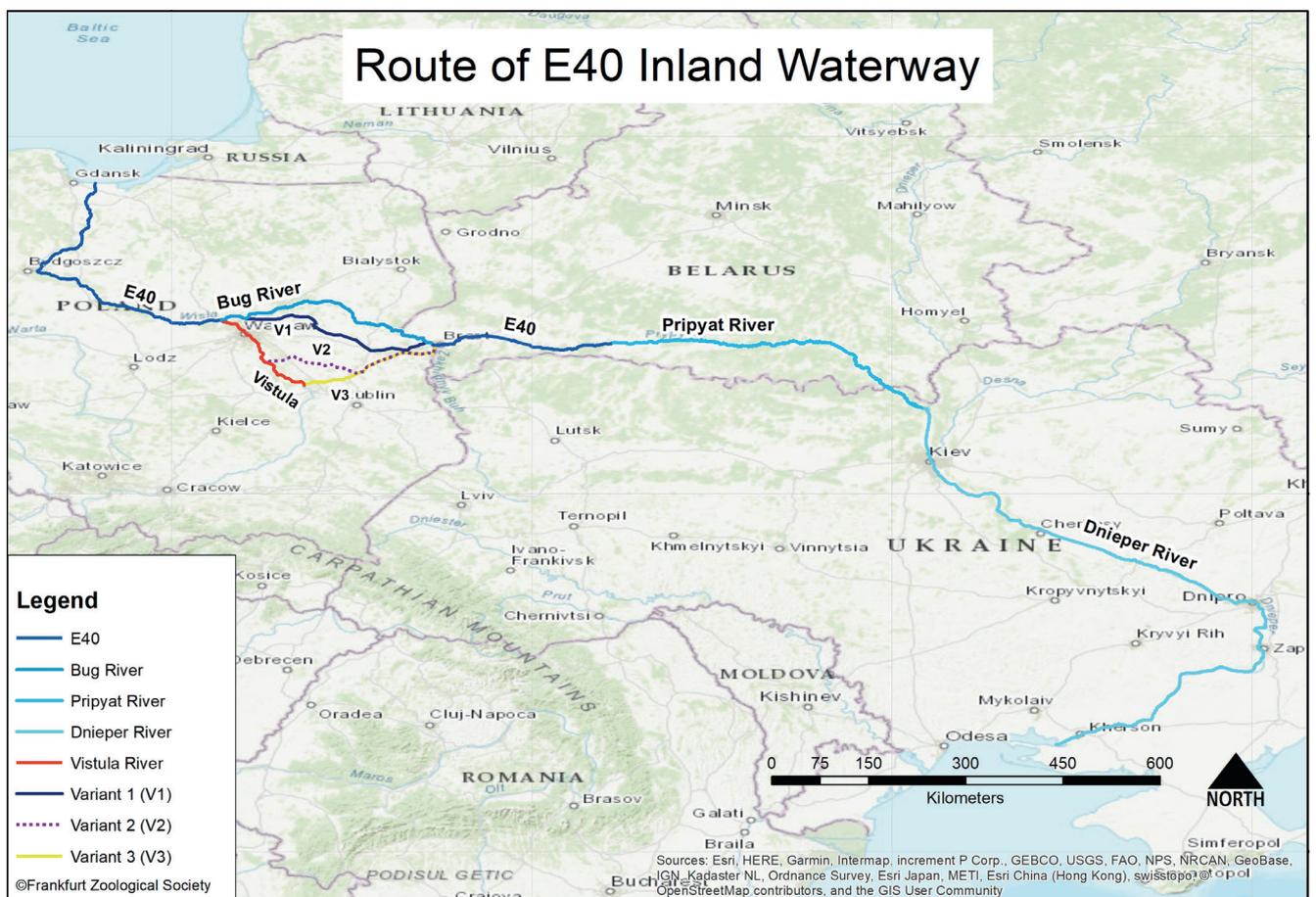


Figure 1: Outline map of the proposed E40 waterway

<sup>4</sup> Initial information from the Polish feasibility study available from <http://programwisla.pl/etap2.html>

<sup>5</sup> Save Polesia [2020] news story E40 waterway feasibility study in Poland: Worrying initial results available from <https://savepolesia.org/e40-waterway-feasibility-study-in-poland-worrying-initial-results-published/>

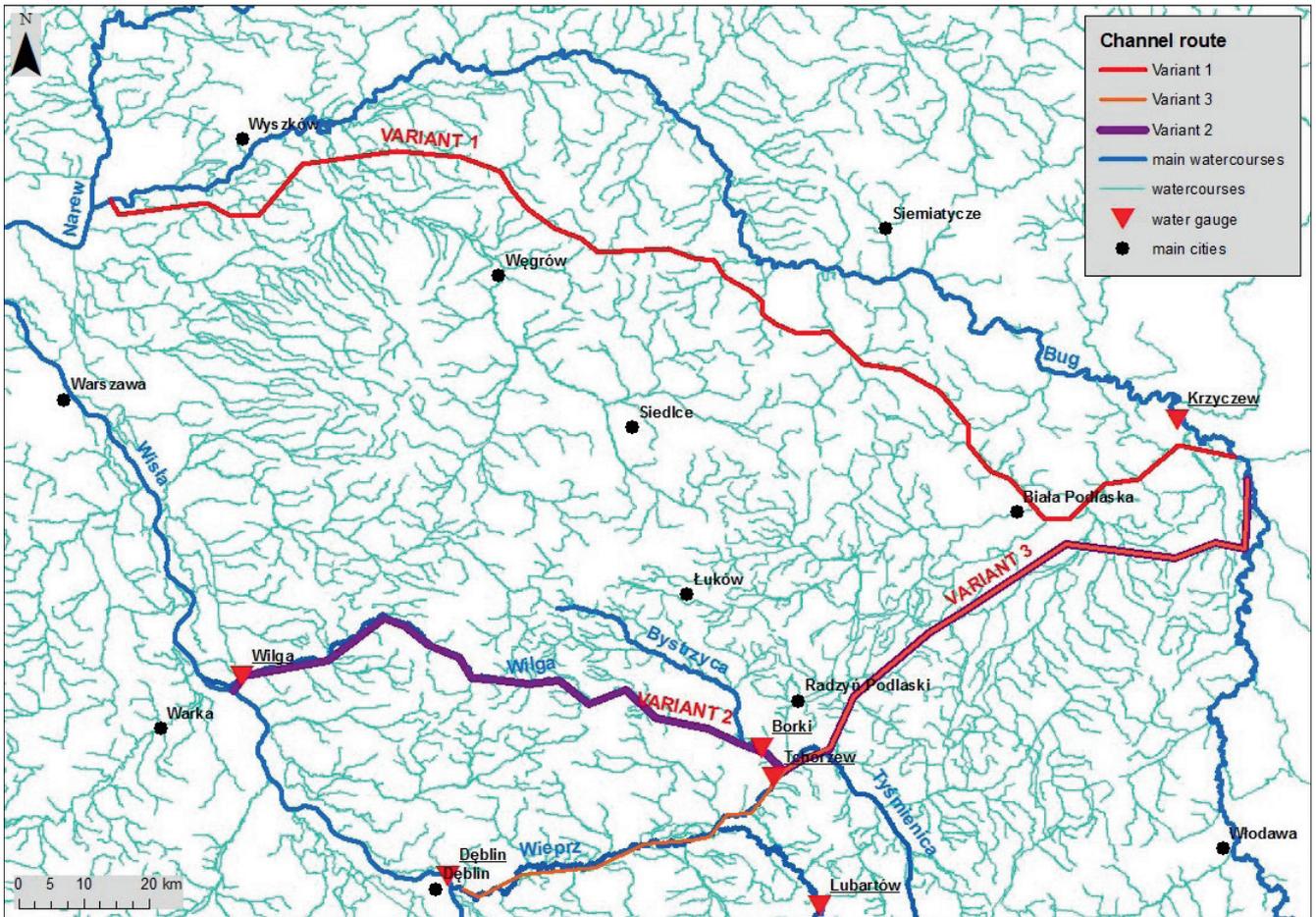


Figure 2: Overview of the natural river network and possible variants of the E40 waterway

## Expert studies

To better understand the potential impacts of the E40 waterway on Polesia, we commissioned a range of experts to look at the factors including: hydrology, transport economics, radioactivity, and potential alternative development scenarios for Polesia. This factsheet summarises the findings of a study on the potential impacts on hydrology and wetland ecology in Poland. It has been carried out by experts from the Wetlands Conservation Centre. The full report is available here.<sup>6</sup>

### What the assessment looked at

Experts analysed the 2015 feasibility study and considered the hydrological, geographical, and environmental threats posed by the E40 waterway on the regional water management and environmental management issues in Poland.

### The key issues considered were:

- The amount of water needed in each of the three variants for a fully functioning channel;
- The river water resources available to supply the channel;
- The impacts of the channel on the surrounding river water resources;
- The impact of the channel on groundwater;
- The impact of the channel on habitats and species;
- The impact on ecological status of rivers.

## Findings

### A massive amount of water would be required for the channel to function

The channel will need a lot of water (see table 1), the majority required to operate the proposed locks on the route. The amount of water needed for V1 and V2 is similar to those in the feasibility study, but for V3 the amount of water required is higher than the feasibility study predicts.

Table 1. Water demand for the operation of channels		
Variant	Water demand calculated by experts (m <sup>3</sup> /s)	Water demand calculated in the feasibility study (m <sup>3</sup> /s)
V1	13,69	9,78-16,38
V2	12,45	8,24-13,38
V3	10,96	5,22-7,79

### There are few viable water sources for the E40 waterway

Only the Vistula and Bug rivers have the water resources needed for the E40 waterway. The construction of the E40 waterway would cause severe changes to the flow of the Bug river (V1), especially in periods of drought. Use of water from the Bug (V1) or from the Vistula (V2 and V3) would require uphill pumping of large amounts of water, which would be expensive and may not be technically feasible.

### The channel would have a severe negative impact on river water resources

The water resources of the Wieprz, Tyśmienica, Bystrzyca, and Wilga rivers are insufficient for operation of any of the three channel variants, even if these water resources are combined. Using water from the Bug river for any of the variants projected by the feasibility study will have a serious impact on the environment: overbank flows would reduce by an average of 17.5% and the frequency of droughts would increase by a shocking 172% (more than 2.5 times as many droughts).

<sup>6</sup> Grygoruk M, Jabłońska E, Osuch P, Trandziuk P [2018] Analysis of selected possible impacts of potential E40 International Waterway development in Poland on hydrological and environmental conditions of neighbouring rivers and wetlands - the section between Polish-Belarusian border and Vistula River. Warsaw, December 2018.

**The channel will drain local groundwater in many sections**

The feasibility study assumes that water will drain out of the E40 waterway along its whole length, thus acting as a source of groundwater. Experts created a hydrological model based on more detailed data about the water courses. Their analysis showed that the channel would in some places supply groundwater to the local area (exfiltration from the channel), but in others it would drain adjacent aquifers (infiltration to the channel). Draining of local groundwater into the channel could have severe negative consequences for local agriculture, households, and the environment.

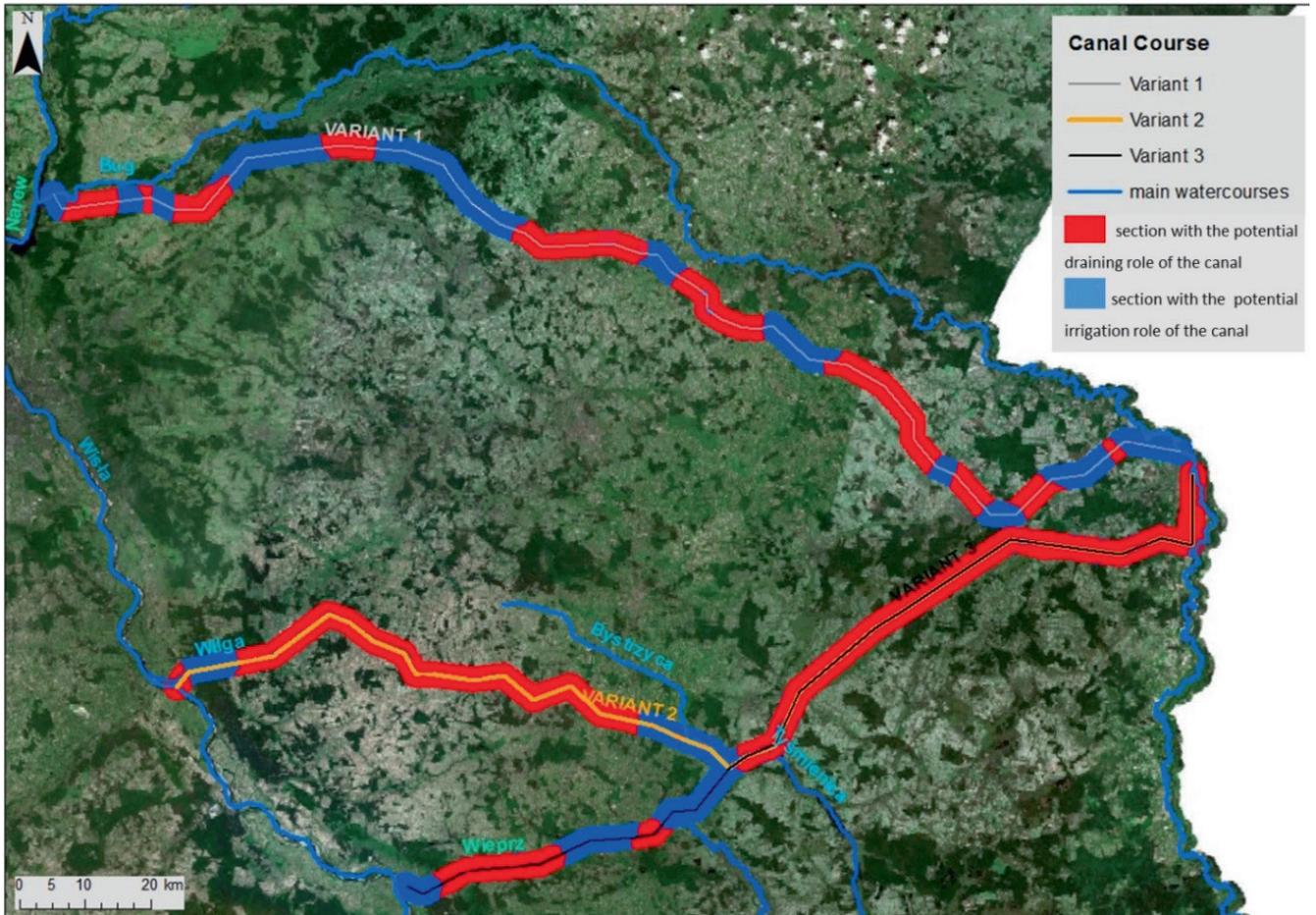


Figure 3: Results of the calculations – possible draining and infiltrating stretches of the channels

**There will be significant negative impacts on key habitats and species**

The feasibility study looked at potential impacts on protected sites, habitats, and species in a 10 km-wide buffer strip along the proposed channel variants. The experts' opinion was that a much larger area should have been considered. They concluded that changes to hydrology would impact large catchment areas, including peatlands and other wetlands, and several Natura 2000 sites in the region.

The catchments of the Tyśmienica, Bystrzyca, Wieprz, and Wilga rivers have 62,500 ha of peatlands, which could be seriously impacted by reduced groundwater levels. This would damage the quality of habitats and their ability to store carbon. There are also ten Special Protection Areas (in total ca. 85,500 ha) and 17 Special Areas of Conservation in these catchments that have water-dependent species, or habitats in their conservation objectives that could be adversely affected by a reduction in groundwater across the region.

Experts found that all variants would likely result in significant negative impacts on the habitats and species of the Bug river and its valley, which is highly protected by Natura 2000 sites. There are Special Protection Areas along almost the entire length of the Bug river and Special Areas of Conservation along the whole lower Bug river and areas along the middle Bug.

A wide range of species, particularly birds, will be affected by the proposed channel. Birds such as the aquatic warbler, back-tailed godwit, ruff, curlew, black stork, little bittern, and marsh harrier depend on Polesia as a key feeding, resting or breeding site, and some of them are very sensitive to disturbance.

**There will likely be damage to the ecological status of rivers**

Experts also considered the obligations of the Water Framework Directive (WFD) <sup>7</sup> to 'protect, enhance and restore all natural bodies of surface water with the aim of achieving good surface water status'. For the Bug, Tyśmienica, Bystrzyca, Wieprz, and Wilga rivers, experts concluded that the possible shortages of water due to the E40 waterway construction would make it more difficult to achieve 'good status'. They were also of the view that the creation of the E40 waterway would contravene required WFD conditions to justify 'new modifications to the physical characteristics of a surface waterbody or alterations to the level of bodies of groundwater'.

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<sup>7</sup> EU Water Framework Directive (WFD) Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy

## Who is Save Polesia?

Our coalition includes six organisations from four countries.



### **APB – Birdlife Belarus**

APB's mission is the conservation of biological diversity for the benefit of the present and future generations and involvement of people in active nature protection activities.



### **Bahna, Belarus**

The aim of Bahna is to prevent further degradation of the environment and to preserve natural habitats and biodiversity of our country.



### **FZS – Frankfurt Zoological Society, Germany**

FZS invests in wilderness areas of global significance – “legacy landscapes” – with aesthetic and natural values, pristine landscapes, important ecosystem processes or values, and endemic and endangered species.



### **NECU – National Ecological Centre of Ukraine**

NECU is an NGO with branches in a dozen of Ukrainian cities. It works to bring environmental consideration into the core of any decision making.



### **OTOP – Polish Society for the Protection of Birds**

OTOP's mission is to protect birds and their habitats and establish and manage new bird reserves. The organisation has strong educational work in order to increase public support for nature conservation.



### **USPB – Ukrainian Society for the Protection of Birds**

USPB's mission is to conserve the biodiversity of Ukraine by saving birds, sites and biotopes.



### **Contact for more information**

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Find out more on [www.savepolesia.org](http://www.savepolesia.org)