

Polesia under threat

How a new waterway could destroy Polesia's natural environment















What is the threat?

Governments want to link the Baltic Sea and Black Sea through a 2,000 km-long navigable connection¹ running from Gdansk via Polish, Belarusian and Ukrainian territory down to Kherson (see figure 1). The so-called E40 inland waterway will cut through the heart of Polesia, one of Europe's last remaining wilderness areas. The proposals involve straightening, deepening, damming, and dredging rivers in some of the most sensitive parts of the region. The impacts of the E40 waterway will dry up rivers, damage landscapes, kill wildlife, destroy the livelihoods of local people, and turn an important carbon sink into a carbon source. There is also a threat to the wider population, as it is likely that radioactive sediment will be disturbed and distributed downstream.



Figure 1: Outline map of the proposed E40 waterway

¹ Class IV inland waterway with the minimum dimensions of vessels 80 m * 9.5 m, depth of 2,5 m















What stage are the proposals at?

Planning of E40 waterway is still at an initial stage. However, dredging is proposed to begin soon. A consortium led by the Maritime Institute of Gdańsk – an organisation overseen by the Polish government – published a feasibility study in 2015 (1). Proposals for the E40 waterway comprise the rivers Vistula, Bug, Mukhovets, Pina, Pripyat, and Dnieper, as well as the Dnieper-Bug channel. The study considers three possible options for the route of E40 in eastern Poland, which differ in how the Vistula river is linked to Terespol (on the Bug and Mukhovets rivers) (see figure 1). One variant (V1) proposes a new channel running to the south of the river Bug; a second (V2) is based on the river Vistula and the river Wilga plus a planned new channel; and the third (V3) is based on the river Vistula, the river Wieprz and the planned new channel. The options vary in length (see table 1).

A second, more detailed feasibility study is now being undertaken on the E40 route in Poland. While not yet finalised, interim information from this 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 (2). All three of these options would be extremely damaging to nature (3).

While the E40 waterway might appear a complete route on the map, some of its sections are either completely unsuitable for shipping or have low shipping classes (I-III), meaning they are only able to accommodate small vessels. Currently this route is only navigable from the Black Sea up to the Polish-Belarusian border.

Table 1: Overview of total length of the proposed E40 waterway			
Country	Length (km)	Variants (km)	Additional information
Poland	599 (minimum)	V1.208 V2.196 V3.160	The variants would be completely new shipping channels and additions to the 439 km of the river Vistula
Belarus	651		The majority of the length (457 km of the 651 km) is on the Pripyat river between Pinsk and the border between Belarus and Ukraine
Ukraine	970		
Total (depending on the selected variant)		V 1. 2268 V 2. 2256 V 3. 2220	

What construction work would the E40 waterway require?

The 2015 feasibility study states:

- In Poland, a new channel would need to be excavated between the Vistula river and Terespol damaging Wieprz and Tyśminica rivers. A series of dams would also need to be built on both the Lower Vistula (8-9 dams) and Middle Vistula (5-6 dams) irreversibly turning the wild Vistula river into a navigation channel.
- In Belarus, the Pripyat river would need to be deepened and straightened, and at least 7 dams would need to be constructed. Flood prevention dykes would need to be installed. Water intake and discharge would need to be regulated in order to control the flooding regime of the Pripyat river. It would also be necessary to develop a new cargo port.
- In Ukraine, it would be necessary to upgrade current locks and low bridges on the Dnieper river and to deepen the channel in various places.















What area would be affected?

The E40 waterway project would impact an area of nearly 400,000 km², inhabited by almost 29 million people. The planned route would also pass through the Chernobyl exclusion zone. A key part of the area impacted through the proposed waterway is Polesia.



Figure 2: Location of the wilderness area Polesia and its internationally protected areas (dark green)

Polesia is Europe's Amazon. This stunning region, which straddles the borders of Poland, Belarus, Ukraine, and Russia, is the continent's greatest intact floodplain region, with pristine forests and immense wetlands. It spans a remarkable area of 186,000 km², as large as half the total landmass of Germany (Ukraine 94,000 km², Belarus 62,000 km², Russia 23,000 km2, Poland 7,000 km²).

Natural and wild rivers lie at the heart of Polesia – the Bug in Poland, Dnieper in Ukraine, and most prominently the more than 750 kilometre long Pripyat. The Pripyat is one of the last major undamaged rivers in Europe and shapes the region with its countless meanders, tributaries, and oxbows. Polesia's pristine areas are home to some of the most biodiverse and culturally rich parts of Europe. The survival of many endangered mammals and millions of birds depends on this untouched landscape. The area not only has tremendous natural intrinsic value, but also provides immeasurable benefits for local communities and national economies. Poleshuks are the indigenous population of Polesia and the area has a strong cultural heritage.

Find out more about Polesia and read the factsheet "About Polesia - A unique wilderness of global importance"















What will the potential impacts be?

Societal problems

- The channel between Warsaw and Terespol is projected to result in almost double the amount of extreme droughts in the Bug river (4). Filling the channel would require a large volume of water and would also have a large impact on the water resources of the Wieprz, Tyśmienica, Bystrzyca, and Wilga rivers.
- Water scarcity that will affect agriculture, aquaculture, forestry and households is likely to occur due to the predicted drainage caused by the new channel in Poland (4). The E40 waterway would also lead to water scarcity for agricultural purposes in Belarus (5).
- There is a risk of oil spills as a result of shipping accidents across the length of the proposed waterway. Petroleum
 products are amongst the only goods that are currently cheaper to transport across the route, but carry considerable
 risks in terms of shipment and pollution (6).
- Construction work in the Pripyat river could result in radioactive contamination. The Pripyat contains radioactive sediment, in particular 90Sr and 137Cs (5, 10). The canalisation of the river and subsequent dredging and shipping will resuspend radioactive sediment, and risks contamination of drinking water and fish in Belarus and Ukraine.

Environmental problems

- The Bug and Pripyat are unique, wild, and free-flowing rivers. Canalisation and construction work will result in a loss of gradients and biodiversity. Subsequent shipping through the river will result in large-scale fish mortality (5).
- There will be severe impacts on protected areas along the proposed route of the E40 waterway. The Polesia region holds several Natura 2000 sites home to globally threatened species such as the aquatic warbler and pond turtle (13), which will suffer habitat loss from large scale damage to water resources (2). The Pripyatsky National Park will be impacted through a reduction of river length, destruction of the habitats of birds and fish, and a reduction of spring flooding (5).
- Canalisation of the Pripyat river would result in greenhouse gas emissions from peatlands drying out. Lower groundwater levels resulting from the canalisation will prevent peat formation and start the decomposition of existing peat, for example in the Almany mire (5).
- There is a high risk of the spread of invasive alien species through shipping on the Pripyat river (5).

Economic problems

— The E40 is very expensive. An initial cost estimate exceeds €12 billion (1). Together with the complex nature of the project, there is a danger that implementation will be fragmented (6). Thus, even if completed, the whole E40 waterway may not be suitable for shipping, but the area would be irreversible destroyed. Other development scenarios focused on nature-based tourism may be more sustainable (6).















Funding the project may come at the cost of better alternatives. There is strong potential to connect the Polish railway system to the port of Rotterdam (13). However, there are many acute bottlenecks in the Polish rail freight system (9) and funding the E40 risks cannibalising investments to remove these bottlenecks. On average, the cost to society of electrified rail freight is around a third less than inland shipping (11). It is likely that shipping on the proposed E40 waterway would be even more expensive, given the projected construction costs and wide-spread ecological damage.



Figure 3: Existing railroads connecting Gdansk in Poland with Odessa in Ukraine [Data: https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html]

- Future markets have not been clearly identified (6). It is unclear which goods and markets the E40 waterway is intended to serve and how they will compete with sea and railway transport.
- Climate change is likely to limit the navigation of ships through the E40 waterway. The projected 25% to 50% reduction of waterflow in the rivers flowing into the Pripyat due to climate change will limit the time the river is open for navigation (5), reducing income and increasing costs.

Legal problems

- Proceeding with planning for E40 in Poland is likely to be contrary to EU legal requirements, such as the Nature and Water Framework Directives (10) and lead to the European Commission taking action against Poland.
- There has not been adequate public information or consultation on the proposed waterway. A Strategic Environmental Assessment of the whole E40 waterway is not planned. Public consultation in Poland has been extremely limited, in contravention of the Aarhus convention, which states that people must be allowed to take part in environmental decision-making. There has been no public information published on the project in Ukraine. Several requests for information submitted by Belarusian NGOs to national authorities were refused.















What information is our analysis based on?

This analysis, largely focussed on the 2015 feasibility study, is based on expert studies we commissioned, namely:

- Two hydrological studies by the Wetland Conservation Centre (4, 5);
- a study on transport economics led by the Belarussian Business Union of Entrepreneurs and Employers (6);
- a study on radioactivity by the Association for Radioactivity Monitoring in the West (7);
- and a study on alternative development scenarios for Polesia lead by Aivar Ruukel, board member of Global Ecotourism Network and local nature tour operator at Soomaa National Park in Estonia (8).

Additional information on the development of waterways in Poland is available online (9-11, 13).

Read the factsheets on the expert studies:

- "E40 waterway would lead to droughts, and destroy rivers and wildlife in Poland"
- "E40 waterway would damage pristine wilderness areas in Ukraine and Belarus and turn an important carbon sink into a carbon source"
- "No economic case for new waterway through Polesia"
- "Polesia's enormous potential for nature-based tourism"
- "E40 waterway could expose millions of people to dangerous levels of radiation"















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.





References

- 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.
- ² Initial information from the Polish feasibility study available from http://programwisla.pl/etap2.html
- ³ Save Polesia (2020) news story E40 waterway feasibility study in Poland: Worrying initial results published https://savepolesia.org/e40-waterway-feasibility-study-in-poland-worrying-initial-results-published/
- ⁴ 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.
- ⁵ Grygoruk M, Jabłońska E, Osuch P, Trandziuk P (2019) Analysis of selected possible impacts of potential E40 Inland Waterway development in Belarus and Ukraine on hydrological and environmental conditions of neighbouring rivers and wetlands. Warsaw, March 2019.
- ⁶ Business Union of Entrepreneurs and Employers (2019) Economic Assessment of Reconstruction Plans for the Inland waterway E40. Forthcoming.
- ⁷ ARCO (2020) Chernobyl heritage and the E40 trans-Europe waterway. Forthcoming.
- ⁸ Ruukel, A (2020) European Amazonia Nature-based tourism development scenario for Polesia. Forthcoming.
- ⁹ Pieriegud J (2019) Analysis of the potential of the development of rail container transport market in Poland. Final Report Contract No 2018CE-16BAT079. European Union: Luxembourg, 2019.
- ¹⁰ The project is not included in the TEN-T Eastern Partnership Extension, and the European Commission has confirmed in writing that this is because of economic and environmental considerations: http://www.europarl.europa.eu/doceo/document/E-8-2018-006186-ASW_EN.html
- ¹¹ Based on a forthcoming study by CE Delft https://ec.europa.eu/transport/sites/transport/files/2018-year-multimodality-external-costs-cedelft-preliminary-results.pdf. These are the externalities without infrastructure costs, as the infrastructure costs would be included in the investment.
- ¹² Sanada Y. et al. (2002) Accumulation and potential dissolution of Chernobyl-derived radionuclides in river bottom sediment. Applied Radiation and Isotopes, Volume 56(5): 751-760. https://doi.org/10.1016/S0969-8043(01)00274-3.
- ¹¹ See the Dutch-Polish Partnership Linked by Rail http://linkedbyrail.com.pl/en











