

Current state of the waterway along the Warta and Noteć Rivers

Jan Kulczyk, Prof.
Radosław Werszko, D.Sc., Eng.
Wrocław University of Technology

ABSTRACT

In June 2004 took place an inspection trip aimed at assessing current state of the east-west waterway connecting the Odra and Wisła Rivers; during the trip a photographic documentation of the region was made as well. The below presented text contains also some conclusions resulting from the trip.

Keywords : waterway, the Warta River, the Noteć River.

GENERAL CHARACTERISTICS

The waterway of the Warta and Noteć rivers can be divided into three characteristic parts. The first of them contains the Lower Noteć from its estuary to the Warta at Santok up to Bydgoszcz Canal, then the Bydgoszcz Canal itself and a part of the Brda up to its estuary to the Wisła. The waterway goes partly along the freely flowing river and partly along the canalized river, it contains 22 chamber sluices of 9.6 m in breadth (including one of 9.1 m only), driven by hand or electric motors, and having the passage depth not less than 1.2 m.

The second part of the waterway contains the connection between the Lower Noteć and the Warta in the region of Konin – via the Upper Noteć Canal, the canalized Upper Noteć, the Gopło Lake and the Ślesin Canal. This part of the waterway contains 12 electrically driven chamber sluices of 9.6 m in breadth, located along the Ślesin Canal, and those hand-driven of 4.9 m in breadth, located in the Upper Noteć region. The passage depths of the particular sections vary from 1.8 m in the Gopło Lake, through 1.3 m in the Ślesin Canal to 0.8 m in the remaining sections.

The third part of the waterway contains the navigable part of the Warta, i.e. from the Ślesin Canal to the Warta estuary to the Odra nearby Kostrzyń. The waterway goes along the freely flowing river of passage depths as small as 0.5 m in some sections.

WATERWAY FACILITIES

Currently all the sluices of the waterway in question and the weirs associated with them are serviceable and well maintained, however it mainly concerns the outer elements whose maintenance does not require any great financial outlays, whereas structural parts of some sluices have been found in a worse state. Families which operate particular sluices compete with each other in maintaining the area of their responsibility in the best appearance (Photo 1).

Much worse situation is with harbours and terminals as they are today practically unserviceable along the whole waterway. An exception is the well-maintained loading quay of the glassworks in Ujście, terminal at Santok upon the Lower



Photo 1. (J. Kulczyk, R. Werszko) Sluice no. 2 – Łabiszyn at the Upper Noteć, Headquarter of Waterway Supervision Office. At the sluice outer harbour an illuminated bivouac site with a bonfire place, tap water source, electric supply terminal and WC can be seen .

Noteć, as well as the well-maintained and equipped terminal at Skwierzyn upon the Warta (Photo 2). Only a few harbour basins operate - such as that of the inland shipyard at Czarnków,



Photo 2. (J. Kulczyk, R. Werszko) The terminal in Skwierzyn upon the Warta, fitted with a tap water source, electric supply terminal, a nearby located hotel with restaurant and car parking place. On the opposite side a municipal promenade .

belonging to Bydgoszcz Shipping Company, or the winter stay for inland navigation barges at Krzyż. Many terminals are devastated, overgrown and deprived from mooring devices (Photo 3), and some of them should be presently deemed not existing at all. Harbour terrains in Poznań have been handed over for development of residential buildings, this way the city has been deprived from any possibility of receiving greater floating units. Moreover there is no real terminal equipped with any basic infrastructure.



Photo 3. (J. Kulczyk, R. Werszko) The devastated terminal in Oborniki upon the Warta .

OBSTACLES FOR NAVIGATION

Almost all navigational obstacles are associated with a low water depth state (Photo 4). Lack of water in rivers, especially in summer, is associated with the general hydrological situation in this part of Europe, which today has a permanent character. This leads to appearing very shallow places which limit the passage depth for an entire waterway section even to 0.5 m that actually makes cargo shipping impossible and leaves the waterway useful to tourist shipping only. A section particularly shallow and difficult for navigation is the navigable part of the Upper Warta – beginning from the Prosna estuary to its inlet to the Ślesin Canal.



Photo 4. (J. Kulczyk, R. Werszko) A shoal patch of about 1-1.2 m water depth and many erratic boulders resting on the river bed section of some kilometers in length and located close to Puszczykowo upon the Warta. A crew member is heaving the lead and showing its result to the ship master .

SHOAL PATCHES

All estuaries of rivers, drainage ditches and even small natural streams constitute places of difficulty in navigating because of drifting the sediments and building the shoal patches in the area of estuaries. For many years no dredging work has been carried out in such places.

Sewage discharge points constitute a separate problem. Sewage treatment and discharge systems are usually equipped with sedimentation tanks whose task is to reduce quantity of sediments brought into the river. They should be regularly cleaned. However as a rule they are not cleaned at all or from time to time only, especially in the case of less important or “forgotten” systems. In consequence, a superfluous quantity of sediments is brought into the river and a shoal patch appears in that point.

REPAIR OF BRIDGES

A next difficulty is the way of carrying out repairs of bridges and other structures in a direct vicinity of the waterway, namely without taking into account shipping traffic needs. During the inspection trip a repair of the road bridge over the Upper Noteć Canal, on the Bydgoszcz - Poznań route, has been carried out. The erected scaffoldings significantly limited the clearance under the bridge, which made it necessary to disassemble the ship’s signal devices and aials protruding over the wheelhouse deck of the ship. In the case of only a little higher water level, to pass under the bridge would not be possible at all.

Also, drainage pipes ranging by more than 0.5 m below the bottom of the bridge span may endanger ship safety. Repair work on other bridges in that region is carried out in a similar way and also similarly dangerous drainage pipes are installed there (Photo 5).



Photo 5. (J. Kulczyk, R. Werszko) A repair of the road bridge over the Upper Noteć Canal. The changes being introduced during the repair work are expected rather to remove the existing obstacles for ship traffic than to cause more troubles .

After-repair remains constitute an important problem. During the trip, almost under every bridge one finds rubble, often a piece of reinforced concrete with protruding steel rods, abandoned bank-strengthening concrete plates, or remnants of old bridgeheads. All the building remains significantly endanger ship traffic. It also happens that when a repair work of a road close to a bridge is conducted, things come to such a point that non - strengthened road shoulders are washed out due to rainfall and a large quantity of aggregate falls into a river or canal forming this way a dangerous local shoal patch.

WASTES ON WATERWAY BED

Horrifying is the practice of throwing away various wastes into a canal or river. On their bed one can find very different things (car tires, refrigerators, baby cars, beds, buckets, vessels, sanitary ceramics) which landed there, but not in wastes storage places instead, due to a non-responsible activity of dwellers of villages and cities located nearby rivers and canals. The ecological awareness of a part of society is very low, transport of the

wastes of a greater size to wastes storing places – costly and troublesome, and the fear for being caught in the act or finding guilty by police is practically absent – such precedences are not reported. Pollution of rivers and canals with various wastes is an identical phenomenon as an illegal dump of wastes, which lately becomes more and more common and troublesome.

The pollution events concern also industrial enterprises located nearby waterways. The wastes lingering on the bed of the Upper Noteć in the area of Inowrocław, which have the form of a section of electric energy cable insulation coating of several kilometers in length, and thrown away probably by „Soda Ciech” Chemical Works, Mątwy, constitute a great hazard for screw-propelled ships as the insulation coating could be wrapped around the screw propellers under action. According to available reports, almost every ship voyage along this part of waterway has been associated with such event.

VEGETATION

Removing excessive vegetation out of waterway is a controversial issue. The most serious phenomenon occurring in water reservoirs is their accelerated eutrophication. It consists in enriching the water in reservoirs with nitrogen and phosphor compounds contained mainly in discharged sewage and fertilizing means applied to arable fields. It results in a more intensive growing process of plants, especially algae, and plankton, as well as in a disturbance of oxygen equilibrium mainly in demersal areas where descending dead organisms undergo decay. It may even lead to complete disappearance of oxygen in demersal layers of water in a reservoir and to start up oxygen-free processes associated with emission of hydrogen sulfide, methane and other noxious substances. Green plants contribute to favourable increase of oxygen content in water but their dead parts also to eutrophication.

From the point of view of ship traffic an excessive quantity of plants overgrowing the waterway constitutes an obstacle (Photo 6). It causes disintegration and devastation of bank walls and water structures, an increase of ship resistance and it makes ship manoeuvring more difficult. Water plants, if wound around screw propeller, lead also to propulsion efficiency dropping and ship engine overloading, and clogging up the water inlet to cooling system, that may result in a serious failure.



Photo 6. (J. Kulczyk, R. Werszko) The overgrown outer harbour of Sluice no. 4 at Frydrychowo upon the Upper Noteć Canal .

In an extreme case, an excess of water plants may stop ship traffic at all. It also makes water economy running more difficult. In the case of intensively overgrown sections of rivers, opening the weirs does not lead to a fast and satisfying change of water level.

Another obstacle are the trees growing near the river banks, whose crowns sometimes are able to decrease breadth of wa-

terway even by a half (Photo 7). Catching on tree branches generates a hazard for ship crews working on the deck; it may also cause a damage of protruding parts of the ship, e.g. signal devices or aerials. In consequence of scouring the trees growing at the river banks also their upsetting into the river may happen, that constitutes even a greater hazard – a failure to ship’s hull, rudder or propeller in the case of running onto an immersed trunk invisible. The upset trees may also cause a blockage of waterway for some time until the obstacle is removed.



Photo 7. (J. Kulczyk, R. Werszko) The crowns of the trees growing just on the river bank limit the waterway breadth in many places. Such waterway sections are attractive for tourists, but dangerous for ship traffic .

INFRASTRUCTURE

Along the entire Warta–Noteć waterway any, even only basic, sanitary infrastructure is practically lacking. The necessary minimum thing is clean, maintained, accessible all the day through, toilets located close to mooring terminals (if they are substandard they will be not used at all), points for discharging the sewage from chemical toilets, and baskets for sacks with garbage from ships or yachts. Also, tap water points and freely accessible showers are needed.

PROSPECTS OF USING THE WATERWAY

The lack of necessary actions to properly maintain the waterway is justified by insufficient funds. In any case their increasing should not be expected because of a slender use of the Warta – Noteć waterway for cargo shipping which has probably gone to the past at all. It results from low parameters of the waterway, first of all its insufficient passage depth in many sections, highly run-down or completely devastated cargo terminals in which any cargo handling is now not possible, as well as a lack of modern floating units profitable in service. In consequence, there is no organization interested in commercial use of the waterway, to say nothing of any investment in this range.

Nonetheless the Warta–Noteć waterway is characteristic of exceptional tourist merits. Unpolluted, almost wild nature in many areas, neighborhood of the Noteć Primeval Forests, sites of birds and rare animals, e.g. beavers, unique landscapes, charming hand-operated sluices or historical monuments nearby located, rank the waterway as one of the unique in Europe. However in order to make it serviceable for tourist purposes the waterway should be fitted with an appropriate infrastructure, first of all sanitary one. Moreover, comprehensive publications –guide books for traveling along the waterway, concerning both its merits and obstacles possible to be met in particular its sections, and containing all practical information necessary for travelers, should be easily available.