

# Golden alga – a small seaweed which exposed incompetency of a big state

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**Key public administration bodies responsible for the citizens' safety remained passive in the first stage of the environmental disaster on the Odra River. Although thousands of dead fish washed up on the river coast for unknown reasons, the authorities failed to take proper actions. The information flow was ineffective. Required crisis management structures were not in place. As a consequence, alerts and bans on using the Odra River were communicated to citizens with a delay of over 10 days. The Odra crisis showed that the state does not care properly about the good condition of waters. This is an outcome of long-term negligence of the state bodies to date, mistaken efforts and insufficient legal solutions. On 14 November, NIK organised a press conference to present key findings of its audit on the environmental disaster on the Odra River in 2022.**

In summer 2022, the Odra River and its tributaries were affected by an environmental disaster on an unprecedented scale in Poland. Over a distance of several hundred kilometres, fish and other aquatic organisms, such as mussels and water snails, died *en masse*. According to the European Commission and the European Environment Agency, it was one of the biggest environmental disasters in the recent history of European rivers. Its effects were not limited to the environment. The economy, tourism and catering industry in particular, has also been affected.

**At least 350 tonnes of poisoned fish were collected from the Odra and its tributaries, of which 250 tonnes in Poland. However, according to some scientists, the actual losses in ichthyofauna were two or even three times bigger – estimates indicate up to 1000 tons of dead fish and the extinction of as much as 80 percent of organisms responsible for the self-cleaning of the river.** Where did these discrepancies come from? Originally, dead fish caught by anglers and volunteers were not weighed, and some of the fish – mainly due to their small size – were not selected by the nets and sank to the bottom and decomposed. This resulted in a significant drop in water oxygenation and contributed to a further increase in the mortality of aquatic organisms in the lower part of the Odra River.

According to experts, **the direct cause of the mass death of fish was a toxin produced by the algae *Prymnesium parvum* (the so-called golden algae).** Their natural habitat are salty and brackish waters, not freshwater rivers. Unfortunately, **as a result of human activity, the Odra River has been polluted for many years, also with salts from underground waters discharged by**

**mining plants.** The high salinity, as well as nutrients found in the river and its tributaries, created favourable conditions for the development of golden algae.

**Pursuant to Article 74 of the Constitution of the Republic of Poland, the public administration is obliged to protect the environment and to pursue a policy ensuring ecological safety to present and future generations.**

The NIK audit focused on two areas: preparation of the state structures and circumstances that led to the environmental crisis on the Odra River, and the way the state authorities responded to the crisis situation of 2022. NIK audited 20 entities: the Government Crisis Management Team, the Government Centre for Security, the Ministry of Infrastructure, the Ministry of Climate and Environment, the Ministry of the Interior and Administration, the Environmental Protection Inspectorate (the Chief Inspectorate for Environmental Protection and the Provincial Inspectorate for Environmental Protection), the State Water Management Holding Polish Waters (KZGW, RZGW) and provincial offices.

## Sluggishness of state authorities

**The authorities responsible for the security of citizens remained passive in the first phase of the crisis. As a consequence, crisis management structures were not put in place and coordinated actions were not implemented.**

First alarming signals about mass fish deaths in the middle of July 2022 concerned the Gliwice Canal. The following ones were related to the Odra River near Olawa (from 27 July 2022). **Although that information was provided to the governors of Opole and the Lower Silesia as well as the Minister of Infrastructure and the Minister of Climate and Environment it was not given the proper weight.** In addition, contrary to the obligations under the crisis management provisions, **they were not immediately transferred to the Government Centre for Security** (i.e. the national crisis management centre). **It was only after a phone call from an individual to the Government Centre for Security (RCB) and media reports that this unit took action about the Odra River crisis (on 10 August 2022).**

At the same time, **the lack of immediate efforts to remove dead fish** from the Odra and stop their movement downstream resulted in secondary pollution of the river. As a result of the decomposition of organic matter, the level of dissolved oxygen in the water went down, causing the death of aquatic organisms in lower stretches of the river.

In the first phase of the crisis, **people were not alerted and the access to the Odra River was not restricted, despite the fact that the cause of the water poisoning was unknown and so were the health consequences of contacting the contaminated water and the biological material found in the water.** Besides, unprepared people (e.g. members of the Polish Angling Association or volunteers) were allowed to clean the river of dead fish. NIK has underscored that in the event of an emergency, crisis management structures and mechanisms should be put in place, which, however, was not the case before 12 August 2022.

NIK auditors also highlighted improper implementation of international obligations. In line with the principles resulting from the agreement concluded in 1996, **the situation on the Odra should be immediately reported to our neighbours, i.e. the Czech Republic and Germany**. Germany was alerted only after receiving prior alarming signals from Frankfurt (Odra). This undermined the image of our country as a responsible partner in efforts to protect transboundary waters.

NIK emphasises that because of the **lack of proper information flow the Government Centre for Security failed to issue warning alerts to the population about the threat until 12 August 2022 (a dozen or so days too late)**. **First bans on using the Odra River issued by the governors were also delayed**.

## The Odra crisis was not...planned

**The National Crisis Management Plan in Poland does not identify the risk of contamination of surface waters, rivers in particular, and hence does not establish necessary action procedures**. Also, the **crisis management plan in force at the Ministry of Infrastructure did not account for such threats**.

It was also found that **the Government Crisis Management Team** failed to discharge significant tasks defined in effective crisis management laws. **That body did not prepare any proposal for using forces and resources essential to control the situation, nor did it develop any recommendations aimed at reducing the risk of recurrence of that threat and its consequences**, in particular the unusually high level of salinity of the Odra River (chloride and sulphate pollution).

All the Government Crisis Management Team did was make two recommendations, e.g. **to set up an inter-ministerial coordination team which began to operate on 12 August 2022**. It needs to be underlined that only the team's efforts made the governors and the state services start to act. **The forces and resources of the State Fire Service and the Ministry of National Defence were used to collect dead fish in an organised manner**. Also, an ongoing flow of information on undertaken and planned activities, as well as their results, was in place. **However, the absence of an analytical and reporting IT system did not support the response mechanism**.

NIK points out that the Government Centre for Security, during the Odra crisis, was marginalised by governors and ministers. Due to the appointment of the inter-ministerial team, the Government Centre for Security did not act as the national crisis management centre, i.e. it did not program or coordinate essential activities.

## Who is responsible for water management?

**The Minister of Infrastructure**, who is responsible for ensuring proper water management, including water protection, failed to take effective measures to coordinate the implementation of public tasks in water management with regard to the ecological crisis on the Odra, and he took actions with unjustified delay. Besides, **the Minister did not provide the ongoing monitoring**

**and analysis of the effectiveness of measures taken by the State Water Management Holding Polish Waters**, which is responsible for domestic water management. On the other hand, in the Polish Waters, first meetings of the Crisis Management Team were held only on 20 August 2022, and the activity undertaken earlier in this unit had not been documented. Later, this entity only played a role supporting e.g. the removal of dead fish.

Despite the poor water condition manifested by mass fish deaths, **the Minister of Climate and Environment, as well as the Chief Inspector for Environmental Protection, in the initial phase of these events, did not make the results of tests and measurements of water quality in the Odra available to the public.** In addition, **the Environmental Protection Inspectorate** started to make regular tests in this area **only over two weeks after first cases of mass fish deaths.**

On the other hand, the negative evaluation of NIK is not altered by the fact that both **the Minister of the Interior and Administration and the Minister of Climate and Environment took a range of measures after 12 August 2022** to take control of the crisis situation. **Those efforts, though, did not help eliminate** the key factor determining the occurrence of golden algae in the Odra, i.e. **excessive salinity of the river.** Those activities did not result in reducing the limits set in the integrated and water law permits, or the amounts of discharged pollutants causing salinity.

On 18 August 2022, the Minister of Climate and Environment appointed a team to clarify the situation on the Odra River, which included, among others, experts and scientists dealing with environmental protection. On 30 September 2022, the team identified **toxins released by golden algae as the direct cause of fish deaths**, which was facilitated by an increase in the water salinity, heat and sunlight. The recommendations in the team's report include, among other things, the necessity to develop a system for continuous measurement of the water quality, review and verification of existing permits, and the need to implement a system to manage legal sewage discharges.

**The situation on the Odra River clearly showed that the government administration bodies and organisational units of the State Water Management Authority Polish Waters were not prepared to counteract the threats caused by the pollution of rivers.** That was due to the omissions of the bodies responsible for the well-being of the water environment, which is an important link in the national security, as well as insufficient legal solutions for effective protection of surface waters against their pollution.

## The Odra River has been polluted for many years

**For many years, public authorities have been aware of the poor condition of the Odra River, caused among others by the introduction of saline underground waters being an outcome of mining operations.** This is evidenced by the results of periodical reviews made by the Environmental Protection Inspectorate, as well as information gathered for the needs of the ongoing surface water management.

**As early as 1999, the Supreme Audit Office reported extreme amounts of salt discharged into the Odra and Vistula basins**, which have a negative impact on surface waters. This issue has also been addressed in many scientific studies. At the same time, the occurrence of golden algae in saline waters since the 70s of the last century has been repeatedly reported abroad – in coastal regions, also in lakes and rivers – where blooms of this algae led to mass fish deaths.

According to the information of the Polish Society of Hydrobiologists, no domestic studies in this area had been conducted before the crisis, although the problem of increasing salinity of waters in the Upper Odra basin and the resulting deterioration of the water quality had been identified for many years.

Nevertheless, **no effective measures have been implemented to reduce the Odra salinity level and the solutions applied by some entities to retain contaminated underground water are insufficient, as they delay the discharge of pollutants into the river by only a few days**. At the same time, the climate change causes the surface water resources to decrease as the temperature rises, which results in the concentration (densification) of pollutants in rivers. However, **the authorities responsible for water management did not even have complete data on the entities using water and sewage discharged by them**, which could be a starting point for planning and effective water protection.

The lack of effective measures to protect surface waters is also evidenced by the fact that **the Minister of Infrastructure, against the provisions of the Water Law Act, did not fully monitor the implementation of measures provided for in the Odra River Basin Management Plan of 2016. The update of this document published in January 2023 was based on incomplete data**. That was due to ineffective efforts to establish the progress in implementing the plans to date and the failure to identify entities and the actual scale of the wastewater discharge into waters by these entities.

## Instead of tightening, rules have been relaxed

**The applicable provisions of law** did not mitigate the risk of negative impact of human activities on waters and the aquatic environment. **They do not provide for mechanisms that would make the legal discharge of sewage dependent on the current state of waters and changing hydrometeorological conditions**. They also do not oblige entities issuing water law permits and integrated permits to identify the cumulative impact of pollutants on the condition of waters before granting permits for their discharge. As a consequence, public administration bodies allow waters to be used in a way that does not ensure the ecosystem safety. This state of affairs is confirmed by the results of analyses made in the course of the NIK audit, according to which **legally discharged sewage may cause many times exceeding the permissible salinity levels in the Odra and its tributaries** (in extreme cases, they led to a salt concentration three times higher than in the Baltic Sea).

**The following factors did not help protect waters and keep them in good condition:**

- 1) **the rules for assessing the water quality adopted by the Minister of Infrastructure in 2021, which did not account for the salinity indices effective in previous years;**
- 2) **the lack of laws specifying the rules for assessing the legitimacy of allowing increased values of chloride and sulphate concentrations in industrial wastewater discharged into waters and waters from the dewatering of mining plants;**
- 3) **the Minister of Infrastructure has relaxed the environmental objective relating to the conductivity parameter in the update of the *Odra River Basin Management Plan* in force from 2023. After the Odra disaster, legal space was created to significantly increase the saline sewage discharges into the Odra River.**

## Lack of system and flow of information on water quality

The Supreme Audit Office also highlighted **the lack of required flow of information between entities conducting environmental quality tests and entities responsible for water management and protection.** Besides, there was no **integrated IT system in place that would collect data on water law permits and integrated permits, on the actual discharge of pollutants, the state of waters, including hydrometeorological conditions, or the results of reviews, analyses and inspections.**

Another limitation was **the lack of an analytical and reporting system supporting crisis management,** gathering information on threats and their development, available and used resources, results of actions taken and possible scenarios for the development of the situation.

NIK takes note of the efforts taken after the disaster on the Odra River concerning the introduction of continuous monitoring of selected water parameters in the Odra, the extension of the scope of tests made as part of the state environmental monitoring, as well as the measures provided for in the Odra Revitalisation Act. **NIK points out, however, that the strengthening of water monitoring is only the point of departure for further actions, and the measures defined in this Act, due to the distant time horizon of their implementation, do not reduce the risk of similar disasters occurring in the coming years.** Experts have warned that a similar disaster scenario is also possible on the Vistula River.

## Recommendations

For **the Prime Minister** to:

- review and evaluate water management solutions to ensure effective water protection and monitoring;

- involve the Government Analysis Centre to develop proposals to reduce the salinity of waters caused by mining operations;
- implement a nationwide system to support crisis management.

The recommendations for the **Minister of Infrastructure** are particularly related to taking legislative measures aimed at:

- making sure that bodies issuing water permits assess the cumulative impact of wastewater discharge;
- reducing the possibility of increasing the salinity of waters under the law changes;
- ensuring the flow of information on: the results of tests and measurements of water and sewage discharges, as well as actions taken as part of the implementation of the Water Management Plan;
- clarifying provisions of the agreement on the transfer of information between: the Ministry of Infrastructure, the authorities of the Environmental Protection Inspectorate and nature conservation bodies and the State Water Holding Polish Waters.