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## Impact of the COVID-19 Pandemic on Water Safety Services in Selected Municipalities in the Southern Baltic Sea

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Apoloniusz Kurylczyk<sup>1</sup>, Marzenna Giedrojć<sup>2</sup>, Małgorzata Zakrzewska<sup>3</sup>

### **Abstract:**

**Purpose:** The aim of this article is to present the impact of the COVID-19 pandemic on water safety services in selected municipalities in the area of the southern Baltic Sea by analyzing changes in the nature of services commissioned before and during the COVID-19 pandemic.

**Approach/Methodology/Design:** Desktop-based research that consisted in a document and database review of available information, statistics and other data from national and regional sources. The statistical analysis performed on the basis of qualitative data collected from Poland via statistical databases. The research relied on the public procurement procedures for water safety services in the following municipalities, Międzyzdroje, Dziwnów, Ustka, and the rural municipality of Ustka.

**Findings:** The analysis of the data presented in this paper shows that the pandemic changed economic circumstances of providing water rescue services, which in consequence directly or indirectly impacted water safety conditions.

**Practical Implications:** This paper identifies that the pandemic not only unequivocally changed economic circumstances of providing water rescue services, but also deteriorated the training conditions, for instance, by rendering swimming pools out of service or banning in-person training.

**Originality/Value:** The presented overview may be useful for improving the management of bathing water safety in Poland, as it contributes to its proper current diagnosis.

**Keywords:** Designated bathing areas, water safety, COVID-19, municipalities, tourism.

**JEL classification:** F53, I31, Z30.

**Paper Type:** Research article.

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<sup>1</sup>University of Szczecin, Institute of Spatial Management and Socio-economic Geography, Poland, ORCID:0000-0002-6378-0580, e-mail: [apoloniusz.kurylczyk@usz.edu.pl](mailto:apoloniusz.kurylczyk@usz.edu.pl);

<sup>2</sup>University of Szczecin, Institute of Political Science and Security Studies, Poland, ORCID: 0000-0002-1325-8348, e-mail: [marzenna.giedrojcc@usz.edu.pl](mailto:marzenna.giedrojcc@usz.edu.pl);

<sup>3</sup>University of Szczecin, Institute of Economics and Finance, Poland, ORCID:0000-0002-6667-3246, e-mail: [malgorzata.zakrzewska@usz.edu.pl](mailto:malgorzata.zakrzewska@usz.edu.pl);

## **1. Introduction**

The COVID-19 pandemic broke out all over the world and has taken the life of over five million people. It had and continues to have significant impact on processes of social life in every society (*WHO Coronavirus (COVID-19) Dashboard*, n.d.). Consequently, many areas of our life have changed – education, trade, transportation, flow of information, access to medicine, culture or mass musical and sports events. The literature shows (Carosa, n.d.) that the pandemic is bringing stop to supply chains, and consequent redistribution measures aimed at recovering the economy are indirectly impacting inflation.

As noticed by Daniel Gros, the Eurozone is experiencing the highest consumer-price inflation in 13 years, and in the USA it exceeded 5%. According to the information provided by the National Bank of Poland (*National Bank of Poland – Internet Information Service*, n.d.-a), based on the data of the Central Statistical Office of Poland (GUS), the indicator of core inflation reached 6.8% in October 2021, and was higher by 1.1% from inflation as at the end of September 2021.

Thus, it may be noted that water safety services provided by water rescue entities to authorities managing water areas should be more expensive. The authors of this article analyzed the results of procedures for commissioning water rescue services in designated bathing areas of selected seaside municipalities (in the area of the Baltic Sea). We selected five seaside municipalities with a comparable number of Designated Bathing Areas (DBA) and similar period of providing services, which commenced on 1 or 15 June and ended on 31 August or 15 September. The timeframe adopted by the authors spanned the period of 2019–2021, i.e. one year prior to the pandemic and two years of providing services during the COVID-19 pandemic.

In Poland, there are laws providing for safety in bathing areas and the organization of DBAs – they include, among others, the Act on Safety of Persons in Bathing Areas (*Act of 18 August 2011 on Safety of Persons in Bathing Areas*, n.d.). Pursuant to Article 4(2), representatives of local government units which are responsible for safety of persons constitute the head of the municipality (*wójt*), mayor or president. However, the laws distributing competences and tasks among public administration bodies are not clear (Czapiewski, 2016).

Depending on the area, water safety tasks are fulfilled differently (Adamczyk *et al.*, 2020). These provisions allow municipalities to organize bathing waters and employ lifeguards on their own or through their budgetary entities (which most often include city sports and recreation centers). Another option chosen especially by smaller municipalities (with up to 20,000 inhabitants) is to commission, by way of public procurement, water safety services provided by specialized water rescue entities, which hold a license awarded by the Minister of Interior and Administration. These are mainly representatives of the so-called third sector – non-governmental

organizations (NGOs) – field units of the Volunteer Water Rescue Service (WOPR) or private entrepreneurs representing the second sector. Services commissioned by seaside municipalities had the same (or similar) Common Procurement Vocabulary (CPV) code indicated in their specifications – 75252000 – rescue service.

Due to the estimated value of the contract, local government units published their notice of contract in the Public Procurement Bulletin or on their municipal websites. When the value of the contract exceeded the amounts provided for by law (during the period under investigation – by 31 December 2019 – the threshold was EUR 221,000, and from 1 January 2020 it is EUR 214,000), the contracting local government unit was obligated to publish a notice of contract, also in the Official Journal of the European Union.

The pandemic unequivocally changed the manner of ensuring safety of persons in water areas (Venema *et al.*, 2020). It is due to the fact that people spend their time in bathing areas and do sports differently (Sigala, 2020; Kowalski *et al.*, 2021). It also may be indicated that even the context and characteristics of drownings were different in that period of time (Houser and Vlodarchyk, 2021). In the West Pomeranian region, water rescue entities implemented numerous measures in order to adapt to the specific pandemic conditions (Czapiewski *et al.*, 2021). The observations carried out in this region are of special research validity, as the processes connected with water safety have been the subject of analyses for some time now (Zalewski and Czapiewski, 2014).

This article was based on a thorough analysis of Terms of Reference available on websites, questions posed by contractors and answers provided by contracting local government units or their budgetary units (on behalf of the city of Ustka the contract was commissioned by a sports and development center OSIR Ustka) as well as decisions and awarded service contracts.

## 2. Methodology

Research methodology was based on the desktop-based research that consisted of a document and database review of available information, statistics and other data from available specifications of water safety services, results of procedures and awarded contracts (Poland).

The research relied on the public procurement procedures for safety services for bathing waters in the years 2019-2021 in the following municipalities: Międzyzdroje, Dziwnów, Ustka, and the rural municipality of Ustka. The research was based on specifications of commissioned water rescue services published on the websites of municipalities participating in the procedures, in particular:

- a) duration, operational hours,
- b) the number of 100 m long DBAs in one seaside municipality,

c) additional equipment and number of lifeguards.

The base unit adopted by the authors, a 100 m long section of DBA with equipment compliant with current laws (*Regulation of the Minister of Interior on requirements for equipping designated bathing areas with rescue and auxiliary equipment, signal and warning devices, and medical equipment, medicine and sanitary ware (Journal of Laws, item 261, 9 March 2012)*). It was assumed that one DBA will be protected by at least three (*Regulation of the Minister of Interior on minimum requirements for the number of lifeguards providing continuous control over a designated bathing area (Journal of Laws, item 108, 27 January 2012)*) lifeguards, pursuant to Article 2(5) (Act of 18 August 2011 on Safety of Persons in Bathing Areas, n.d.).

The base period was decided to be two months – in total 62 days of protection, eight hours a day. The base assumption was the minimum threshold of expectations of local government units with respect to the services they commissioned. Moreover, to obtain the average cost of 1 DBA for a municipality the period of 62 days was adopted. If a local government unit extended the period by 15 days (for instance, from 15 to 30 June – prior to the SEASON, or 1 to 15 September – after the season), then the rate of 1.5 DBA was adopted to calculate the unit cost.

When analyzing the research material, the authors were seeking changes in the nature of services commissioned before (year 2019) and during (years 2020-2021) the COVID-19 pandemic, and then considered their relation to the pandemic or lack thereof. For illustrative purposes, the costs borne by a local government unit were expressed in Polish zloty [PLN] and euro [EUR]. In a given year under research, the currency conversion rate from PLN to EUR was the average euro exchange rate on the first working day of a given year, published on the website of the National Bank of Poland (*National Bank of Poland – Internet Information Service, n.d.-b*). For the year 2019 – EUR 1 = PLN 4.30, year 2020 EUR 1 = PLN 4.26, year 2021 EUR 1 = PLN 4.55.

### **3. Research Results**

The results of the research are presented in Table 1, and they include the comparison of the DBA number, duration of services in a bathing season, and proportional number of lifeguards required to secure all DBAs. For comparative purposes, the table presents the average costs of securing one DBA in a municipality. Results for years 2019-2021 are presented in Tables 1-3.

**Table 1.** Comparison of service contracts awarded in the 2019 bathing season

Contracting entity	City of Międzyzdroje	Municipality of Dziwnów	Municipality of Ustka	City of Ustka
2019 season				
DBA number	13	21	10	8
Number of lifeguards	39	63	30	24

Total duration of the service (in days)	107	92	62	92
Gross amount for the services [PLN k]	538	691.99	530.00	450.62
Gross amount for the services [EUR k]	125.12	160.93	123.26	104.79
Gross amount per 1 DBA [PLN k]	41.38	32.95	53.00	56.33
Gross amount per 1 DBA [EUR k]	9.62	7.66	12.33	13.10
Available accommodation	NO	YES	YES	Partially

*Source: Own study based on public information bulletin.*

Table 1 presents the scope and cost of the services prior to the COVID-19 pandemic occurring in Poland. 2. Tables 2 and 3 present the scope of services during the SARS-COV-2 pandemic in the years 2020 and 2021.

**Table 2.** Comparison of service contracts awarded in the 2020 bathing season

Ordering party	City of Międzyzdroje	Municipality of Dziwnów	Municipality of Ustka	City of Ustka
2020 season				
DBA number	9	25.5	10	8
Number of lifeguards	27	76.5	30	24
Total duration of the service (in days)	77	77	62	92
Gross amount for the services [PLN k]	477	930.95	530.00	444.44
Gross amount for the services [EUR k]	111.97	218.53	124.41	104.33
Gross amount per 1 DBA [PLN k]	53.00	36.51	53.00	55.56
Gross amount per 1 DBA [EUR k]	12.44	8.57	12.44	13.04
Available accommodation	NO	YES	YES	Partially

*Source: Own study based on public information bulletin.*

**Table 3.** Comparison of service contracts awarded in the 2021 bathing season

Ordering party	City of Międzyzdroje	Municipality of Dziwnów	Municipality of Ustka	City of Ustka
2021 season				
DBA number	10	25.5	10	8
Number of lifeguards	30	76.5	30	24
Total duration of the service (in days)	92	77	62	107

Gross amount for the services [PLN k]	600	930.95	499.67	410.00
Gross amount for the services [EUR k]	131.87	204.60	109.82	90.11
Gross amount per 1 DBA [PLN k]	60.00	36.51	49.97	54.67
Gross amount per 1 DBA [EUR k]	13.19	8.02	10.98	12.01
Available accommodation	NO	YES	YES	Partially

*Source: Own study based on public information bulletin.*

The research into the 2020/2021 season in the municipality of Dziwnów covered 6 DBAs (located in Dziwnówek) which were secured in 2019 without the need for the municipality of Dziwnów to bear any costs – the authors did not include this service in 2019.

Each of the municipalities under research commissioned DBAs to operate for 8 hours a day, i.e., from 9 am to 5 pm or from 10 am to 6 pm. In each procedure, local government units adopted price as the main criterion when evaluating an offer. Interestingly, this criterion encompassed up to 60% of the maximum assessment of the offers in all instances. Other criteria applied by contracting parties: number of additional lifeguards to provide services, willingness to credit the services by extending the time limit for payment, engaging additional rescue equipment to provide services (other than the minimum number required under the law), i.e., motorboats, rescue water crafts (RWC), all-terrain vehicles (ATV) or 4x4 off-road cars. In one of the procedures, it was possible to obtain additional points for proving experience in securing other seaside DBAs.

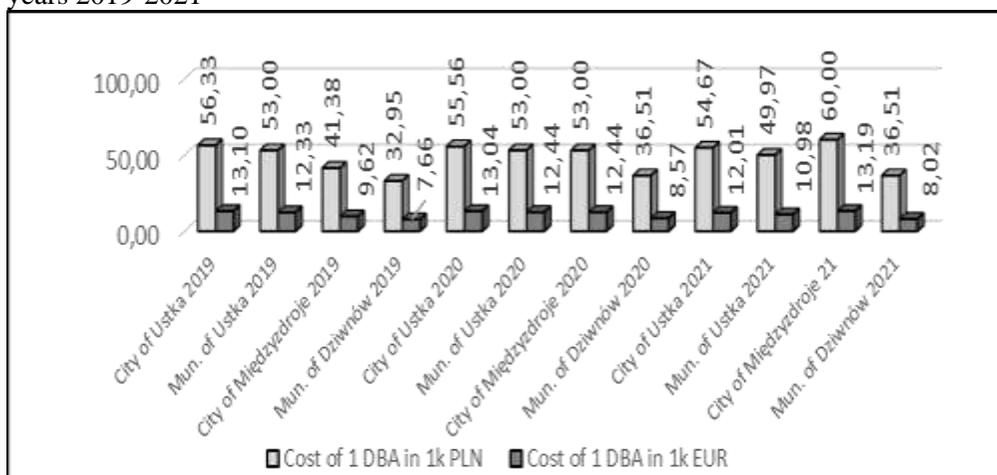
The analysis of additional equipment required by local government units to provide the services shows significant differences. The municipality of Dziwnów did not have any additional requirements both in terms of additional lifeguards performing the tasks and additional equipment, other than the minimum equipment compliant with the provisions of law. Other local government units required one or two medical facilities with equipment and medicines as well as employing paramedics.

Other requirements included having at least two rescue units (rescue boats or RWCs) as well as the personnel (helmsman/rescuers) to handle such equipment. The three indicated local government units required three-person water rescue teams to respond and provide help after the closing hours of bathing waters (from 6 pm to 10 pm or 6 pm to 10 am). Three out of four local government units additionally required employing a licensed diver. Other than rescue boats, the additional required equipment were ATVs. In Międzyzdroje, it was a 4x4 car and a drone (unmanned aerial vehicle, UAV). The town also required rescuers licensed as pilots and a licensed driver of emergency vehicles.

All local government units commissioned preventive and educational measures for the purposes of the DBA. In the years 2020-2021, the city of Ustka (as the only local government unit) required equipping rescuers with disinfectants, masks and gloves. In the same period, the city introduced an option to voluntarily decrease the number of DBAs when performing the contract, which condition depended on the pandemic situation in Poland. In 2021, the rural municipality of Ustka also introduced the option to withdraw from performing water safety services if state authorities introduced restrictions with the purpose of limiting the spread of the COVID-19 pandemic.

All the above factors impacted the final price of rescue services. The costs of awarded public procurement contracts are presented in Figure 1.

**Figure 1.** Comparison of water rescue costs per 1 DBA for municipalities in the years 2019-2021



Source: Own study based on public information bulletin.

The total opening time of bathing waters in municipalities in the years 2019-2021 compared with the pre-pandemic period (year 2019) and the years 2020 and 2021 provides interesting consideration. It is presented in Table 4 Year 2019 was adopted as the base year.

**Table 4.** Comparison of opening hours of bathing waters and dynamics of changes in the years 2019-2021

	City of Międzyzdroje	Municipality of Dziwnów	Municipality of Ustka	City of Ustka
Availability of bathing waters (hours)				
Year 2019	5,680	9,136	4,960	3,712
Year 2020	4,208	11,240	4,960	3,712
Year 2021	4,448	11,240	4,960	3,336

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Dynamics of changes in availability of bathing waters compared to 2019				
Year 2019/2019	base	base	base	base
Year 2019/2020	-25.92	23.03	0	0
Year 2019/2021	-21.69	23.03	0	-10.13

*Source: Own study based on public information bulletin.*

The availability of bathing waters did not change in the municipality of Ustka. In Międzyzdroje, opening hours of bathing waters decreased by over 20%, and in Ustka the 2021 drop exceeded 10%. Since as many as six DBAs were not available for the year 2019 in the municipality of Dziwnów, as compared to the costs in 2020 and 2021, the authors decided not to include this municipality.

#### **4. Conclusions**

Aiming to achieve the highest level of security of bathing waters, contracting entities mostly increased the scope of water rescue services, requiring offerors to provide additional equipment, increase the number of lifeguards or extend the working time. Such actions directly impacted the costs of providing services. However, the lack of available accommodation facilities played a major role. The rural municipality of Ustka and the municipality of Dziwnów made accommodation facilities available to lifeguards in exchange for bearing the costs of consumed utilities.

This also had an impact on the final costs of services. The COVID-19 pandemic had an effect on how long DBAs operated in municipalities. The majority of local government units decreased the availability of bathing waters in the first and the second year of the pandemic, where that change ranged from few to several dozen percent, as compared to the year prior to the COVID-19 pandemic (year 2019).

It is necessary to research the water rescue market, and use the available data to take actions with the purpose of determining factors which most significantly impact the cost of services. The collected relevant material unequivocally shows that the pandemic has changed economic circumstances of providing water rescue services. This has directly or indirectly impacted numerous water safety conditions.

Although a cursory analysis could point to certain stability between individual years, the research at hand indicates a change in the characteristic of the DBA. Furthermore, with the pandemic the existing trends in the areas of demography and economic situation are changing the conditions of providing water rescue services. The situation was made worse by difficulties with training, i.e. rendering swimming pools out of service, banning training where there is direct contact, which were all unequivocally related to the pandemic.

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