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The maritime significance of the Puck Bay, Poland

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THE MARITIME SIGNIFICANCE OF THE PUCK BAY, POLAND

1. Introduction

Maritime as an adjective should be understood as more than only water and the environment it creates. It must be noticed that within that notion all activities conducted by people near/on and under water are hidden. That creates its complexity. Different sources were used in order to write presented article. It is also the reason of its composition. It has been divided into 3 parts that consider the landscape, the biology and the human factors. In this article the attention is directed towards the Puck Bay and its importance with ecological and economical perspectives for the societies living nearby.

Although more information about the underwater research was expected to be available it occurred that publications are hardly achievable. Nevertheless the final conclusions appeared to be satisfying.

The presented article is an overview of many studies that were and are conducted in the Puck Bay. It highlights the most important aspects that may be used for further research.

2. The geographical background

The Baltic Sea is classified as an Epeiric Sea which means that it is located on the continent and not between them. Because of that its waters are shallower than waters of, for instance, the Mediterranean or the Black Sea¹. However it does not make it less interesting or less diverse. Worth mentioning is the coastline that is carved by many bays and other geomorphologic creations².

One of them, called by local inhabitants the Small Sea, is located in the southern part of the Baltic Sea and belongs to the Polish internal waters. It is

¹ L. Håkanson, *Środowisko Morza Bałtyckiego*, tłum. A. Jankowski, G. Jankowski, Uppsala 1991, z. 1, p. 4.

² *Ibidem*, pp. 6-7.

widely known as the Puck Bay. The name derived from the town of Puck that is located on the shore of the bay³.

The Puck Bay occupies the territory of 100 km² and is the eastern part of the Bay of Gdańsk. The average depth of 3-4 m categorizes the bay to the shallow waters basins with the salinity of 7.31-7.65 ‰⁴. The bay has been created by moraine plateau and the Hel Peninsula which separates it from the open sea. Although there are several ideas about the genesis of the bay none of them is fully accepted by the society of scientists⁵. The coastline is characterized by the occurrence in turns cliffs, flat alluvial spaces and dunes⁶. It also has its own microclimate that generally has been classified as the Baltic type⁷.

3. The biological significance

Closely connected and depended on the geographical construction of the Puck Bay is the next to describe: a diverse biological life. It is displayed by miscellaneous flora and fauna that due to the environmental conditions got an opportunity to develop there. It is also strengthened by the existence of an interesting phenomenon called upwelling⁸ that plays a significant role in shaping of the Puck Bay ecosystem⁹.

However that originality has been in danger caused by the polluting of the water. Whether generated by the transportation of heavy metals by the River Vistula¹⁰ or movements of the sediment¹¹. It introduced a serious impact on the biological context of the Puck Bay. Fortunately, the governments of the

³ A. Zabierski, *Z kręgu problematyki związanej z badaniami kompleksowymi nad początkami portu puckiego*, Peribalticum, 1985, vol. 4, p. 123.

⁴ J. Nowacki, *Termika, zasolenie i gęstość wody*, in: *Zatoka Pucka*, red. K. Korzeniewski, Gdańsk 1993, pp. 71-78.

⁵ J. Cyberski, K. Szefer, *Klimat zatoki i jej zalewiska*, in: *ibidem*, p. 303.

⁶ *Ibidem*, p. 304.

⁷ H. Jankowska, L. Łęczyński, *Geologia i geomorfologia*, in: *ibidem*, p. 14.

⁸ M. Matciak, J. Nowacki, W. Krzywiński, *Upwelling intrusion into shallow Puck Lagoon, a part of Puck Bay (the Baltic Sea)*, *International Journal of Oceanography and Hydrobiology*, 2011, vol. 40 (2), pp. 108-111.

⁹ G. Broström, *On the influence of large wind farms on the upper ocean circulation*, *Journal of Marine Systems*, 2008, vol. 74, p. 590.

¹⁰ G. P. Glasby, Szefer, P. *Marine pollution in Gdansk Bay, Puck Bay and the Vistula Lagoon, Poland: An overview*, *The Science of the Total Environment*, 1998, vol. 212, p. 55.

¹¹ E. Szymczak, H. Piekarek- Jankowska, *The transport and distribution of the river load from the Reda River into the Puck Lagoon (southern Baltic Sea, Poland)*, *International Journal of Oceanography and Hydrobiology*, 2007, vol. 36 (1), pp. 103-124.

Baltic basin countries had undertaken some actions towards protection of the sea ecosystems. It led establishing the Baltic Marine Environment Protection Commission¹² and the Convention on the Protection of the Marine Environment of the Baltic Sea Area has been signed. It both regulates the steps that must be initiated in order to eliminate already existing pollutions and it provides a number of operations preventing potential environmental problems. To continue in this vein, a reconstruction of the macro and micro fauna within the existing post-industrial structures is being conducted in Polish waters¹³. The underwater landscape is of great importance for existing organisms that need breeding areas.

Moreover, as it was emphasized by some authors¹⁴, the coastal landscape created around the Puck Bay gives the possibility for many halophytic species to grow.

To conclude, worth mentioning are the studies of wave movements¹⁵ that help understanding sea and its changes within environmental and geomorphologic context.

4. The prehistoric significance. An overview

It seems that the territory of the Puck Bay rim was interesting and suitable to settle already during the Prehistory times.

It started with the Corded Ware Culture (also known as: the Battle Axe Culture; the Single Grave Culture, Ger. *Schnurkeramik*), that occurred during the late Neolithic, flourished through the Copper Age and ended in the Early Bronze Age¹⁶.

However soon on the rim of the Puck Bay appeared a new group of people who specialized in the production of amber jewellery and the exploration of

¹² *Helsinki Convention (Convention On The Protection Of The Marine Environment Of The Baltic Sea Area)*, Baltic Marine Environment Protection Commission, Helsinki 2008, pp. 1-4.

¹³ M. Szymelfenig, L. Kotwicki, B. Graca, *Benthic re-colonization in post-dredging pits in the Puck Bay (Southern Baltic Sea)*, *Estuarine, Coastal and Shelf Science*, 2006, vol. 68, pp. 489-498.

¹⁴ H. Czyż, T. Kitzczak, *Walory florystyczne, użytkowe i przyrodnicze słonaw przymorskich*, *Rocznik Ochrona Środowiska*, 2008, vol. 10, pp. 473-479.

¹⁵ M. Paprota, J. Przewłócki, W. Sulisz, B. E Swerpel, *Extreme Waves and Wave Events in the Baltic Sea*, *Proceedings of the MAXWAVE workshop on Rogue waves – Forecast and Impact on Marine Structures*, Geneva 2003, pp. 1-7.

¹⁶ J. Machnik, *Krąg kulturowy ceramiki sznurowej*, in: *Prahistoria ziem polskich*, tom II, red. W. Hensel, T. Wiślański, Wrocław-Warszawa-Kraków-Gdańsk 1979, pp. 339-412.

marine resources. They settled there at the end of the III millennium BC and stayed until the beginning of the II millennium BC. It is known as the Rzucewo Culture (also Rutzau or the Bay Coast Culture, Ger. *Haffküstenkultur*). Firstly, it was thought to be another group of the Cored Ware Culture. Nevertheless the newest research suggests that it had formed before that culture. It means that the Rzucewo Culture was separated and local formation of late Neolithic as it was already stated by some authors¹⁷.

During the Bronze Age at the territory of the Pomerania occurred one of the Tumulus Bronze Age Cultures (Ger. *Hügelgräberkultur*) called by archaeologists the Pre-Lusatian Culture. It is characterised by an impressive amount of bronze objects especially within the latest phase. Then the import of bronze is noticeable via the occurrence of long pins, massive bracelets and swords¹⁸.

After abovementioned, the Lusatian culture occurred and it dominated almost the whole Polish land¹⁹ but especially the northern part where it evaluated into the Iron Age Pomeranian Culture with its characteristic face urns²⁰.

Just before the first Slavic tribes the culture which marked itself with an interesting metal work was the Oksywie Culture²¹.

5. The historical importance²². An overview

One of the major characteristics of the Baltic Sea is amber. The, so called, Gold of the Baltic Sea has been of a great importance since Prehistoric times²³. It imprinted its own route during the Roman Empire Period²⁴ and was one of

¹⁷ J. Kostrzewski, *Pradzieje Pomorza*, Warszawa 1966, pp. 28-30.

¹⁸ B. Gediga, *Starszy okres epoki brązu za zachodnich ziemiach polskich w zasięgu kultury przedłużyckiej*, in: *Prahistoria ziem polskich*, t. II, red. W. Hensel, T. Wiślański, Wrocław-Warszawa-Kraków-Gdańsk 1979, pp. 140-141.

¹⁹ A. Gardawski, *Wczesna faza kultury lużyckiej i kultura pucharów lejkowatych i czasy pełnego rozkwitu kultury lużyckiej i kultury białowickiej. Od początków IV okresu epoki brązu po koniec okresu halsztackiego*, in: *Prahistoria ziem polskich*, t. IV, red. J. Dąbrowski, Z. Rajewski, Wrocław-Warszawa-Kraków-Gdańsk 1979, p. 47.

²⁰ J. Kostrzewski, op.cit. pp. 84-85.

²¹ F. J. Lachowicz, *Podokres Późnolateński i Okres Wpływów Rzymskich*, in: *Pradzieje Pomorza Środkowego*, red. M. Sikora, Poznań 1975, p. 98.

²² The part concerns events until beginning of 20th century.

²³ Z. Bukowski, *Znaleziska bursztynu w zespołach epoki brązu i z wczesnej epoki żelaza z dorzeczna Odry oraz Wisły*, Warszawa 2002.

²⁴ O. Brogan, *Trade between the Roman Empire and the Free Germans*, The Journal of Roman Studies, 1936, vol. 26 (2), pp. 195-222; A. Mócsy, *Pannonia and Upper Moesia. A History of Middle Danube Provinces of the Roman Empire*, London 1974; M. Fulford, *Territorial Expansion and the Roman Empire*, World Archaeology, 1992, vol. 23 (3), pp. 294-305.

the reasons of the Polish Golden Age during the Renaissance²⁵. Moreover it still attracts tourists who come for holidays to the Polish coastline.

The Puck Bay, because of its localisation (close to mouth of the Vistula River and one of the most important coastal points – Gdańsk), has strong historical and economical significance for Poland. Although written sources about the amber trade are already known from the Roman Period²⁶ the real expansion of the Bay started in the medieval times. Then the Baltic Sea finally stopped being seen as an obstacle and became a new way of connections between lands²⁷.

Nevertheless Pomerania as a valuable localization was a reason of many conflicts and went the rounds between the Kingdom of Poland and its neighbours for years. It finished in 1795. Three world powers of that time: the Russian Empire, the Kingdom of Prussia and Habsburg Austria signed the decision regarding the final Partition of Poland. The whole territory of Pomerania went to the Prussian hands and the Kingdom of Poland disappeared for 123 years from the map of Europe. Fortunately, after WW I and due to the Treaty of Versailles the central part of Pomerania went back into the Polish territory. Although the regulations were already signed the government of Poland wanted, throughout propaganda actions, to highlight the proper origin of Pomerania and its inhibitions. Besides the spectacular manifestations and parades of army that were performed in the biggest towns of Pomerania the authority wanted to emphasize the “Polishness” of the southern part of the Baltic Sea²⁸. They conducted the, so called, Poland’s wedding to the sea. It was celebrated for 2 days. Main events were scheduled on the 10th February 1920 and they included: the salutation of the flag by dunking it into water of the sea, the Holy Mass and the erection of the commemorate pole²⁹. It was thought to represent the importance of the Baltic Sea including its bays, harbours and long, sandy beaches to the Polish society. It is still remembered and annually commemorated³⁰.

²⁵ J. Kriegseisen, *Słupskie bursztynnictwo: wyroby słupskiego cechu bursztynniczego od XVI do początku XX wieku*, Słupsk 2002.

²⁶ C. M. Wells, *The Roman Empire*, Cambridge (Massachusetts) 1995, p. 84.

²⁷ S. Lempicki, *Wiek złoty i czasy romantyzmu w Polsce*, Warszawa 1992.

²⁸ M. Kardas, *Gdańskie zaślubiny Polski z morzem w 1920 roku*, Colloquium, 2009, vol. 1, p. 110; M. Porębska, *Ceremoniał Morski Wczoraj i Dziś*, in: *Patriotyzm Fundamentem Bezpieczeństwa Narodowego RP W XXI Wieku*, red. K. Gąsiorek, S. W. Moczulski, Warszawa 2011, p. 50.

²⁹ M. Kardas, op. cit., p. 111.

³⁰ K. Szyniec, *Pieśni Morza W Marynarce Wojennej*, in: *Patriotyzm Fundamentem Bezpieczeństwa Narodowego RP W XXI Wieku*, red. K. Gąsiorek, S. W. Moczulski, Warszawa 2011, p. 66.



Fig. 1. Poland's wedding to the sea taken, 10th February 1920, Puck



Fig. 2. Watch of the Poland's wedding to the see commemorate pole

During WW II the Puck Bay, alike previous international conflicts, was used as a natural harbour for small vessels³¹.

³¹ D. Stoker, *The Naval War in the Baltic, September – November 1939*, Baltic Security and Defense Review, Tartu 2009, vol. 11, pp. 91.

6. The underwater treasures³²

The last part regards objects hidden underwater. People create history through leaving material and verbal remains behind. Since there were settlers on the coast of the Puck Bay for a long time the story to tell is rich and miscellaneous.

Due to searches for natural resources in the Puck Bay an intensive underwater archaeological research was undertaken in the 70's of the 20th century. Archaeologists expected to find remains of the coastal societies from the early medieval period, times of the Golden Age and "*dominium maris Baltici*" in the turn of 16th and 17th century.

Indeed relicts of the wooden construction (probably the reinforcement of the harbour) with a wreck of the Slavic type (1245±15 AD), another wreck of the Punt boat dated to the 18th century and pottery dated to 10th-13th century were discovered³³.

The first boat belongs to the group of five Slavic boats, dated to the time between the 5th and the 13th century, and it was found nearby Puck. Another ship of that collection, the Puck 2, is dated to the 10th century and although in the construction it resembles Viking ships it is slightly wider than them. That kind of construction provided more stability during stormy weather but it less manoeuvrable during the warfare³⁴. Those five boats, together with the remains of the harbour, give a picture of Puck and its bay as an important trading and exchange point at the beginning and during medieval times.

Other vessels were wrecked there on purpose during the 20th century. Some of them are worth mentioning since they already are a part of the Puck Bay history.

The first ship to describe is called Delfin and it was in use from the 40's of the 20th century. After its service it served as a target for the marine force practices. The second, Kujawiak, was a submarine used firstly by USSR and later became an ownership of Poland. It also served as a target for army practices. The third, Zawisza Czarny was the first fully sized seagoing yacht owned and

³² All the information about the wrecks has been taken from: <www.balticwrecks.com> and <www.moje-morze.pl/cmentarz>.

³³ A. Zabierski, op. cit., pp. 130-131.

³⁴ B. Gondek, *Słowianie na fali*, in: *Gazeta Wyborcza.pl*, 2006: <<http://wyborcza.pl/1,75248,3140520.html>, dostęp: 21.01.2012>; J. Bill, <<http://www.vikingskibsmuseet.dk/en/the-sea-stallion-past-and-present/longships-magnified/the-archaeological-sources/puck-2-a-slavic-longship>, dostęp: 21.01.2012>.

operated by the Polish Scouting Association and was in the service until the beginning of WW II when it was overtaken by Germans. After returning, in very bad condition, to Poland it has been decided to sink it in the Puck Bay. The fourth, *Ślązak* was also a submarine used initially by USSR and later by the Polish Marine Force until the 60's of the 20th century. It seems that the wreck was thought to be covered with soil (next to the ship there is an artificial pit – possibly during wrecking the boat did not fall in the planned localization). The last is an anti-submarine vessel of USSR, called *Groźny*, removed from service in 1971.

There are also 4 findings of clinker-build cargo ships (*Helena*, *Katarzyna*, *Erwin* and *Eugenia*) built at the turn of the 19th and the 20th century in the Rewa harbour on the coastline of the Puck Bay. Unfortunately the information about them is hardly published besides one very short note within the book by Cederlund about the wreck of *Helena*³⁵.

The rest of the sunken boats are fishing cutters without either specific name or meaning which now are used in the environmental reconstruction and as touristic attractions.

7. Conclusion

Poles benefit a lot from the Baltic Sea – starting with fishing and amber collecting, throughout the usage of the sea as a trade road and a battle field, and treating it as a commemorative place. To strengthen the view some statistical numbers should be quoted³⁶. To start with the Polish coastline is visited by over 5.5 million people each year out of which ca 2 million are foreign. Visitors are both tourists and persons who come for business purposes. Moreover according to the Central Statistical Office in Gdańsk there was over 150 000 tons of fishes collected in 2005 from Baltic. The bigger part of it was gathered by the private sector in the means of house providing and selling. Furthermore over 200 tons of amber is gathered each year and not for nothing it is called the “gold of Baltic”. Both amber gathering and fishing help developing local and regional economics. It is evaluated that there are ca 20 000 wrecks in the

³⁵ C.O. Cederlund, *The Old Wrecks of the Baltic Sea. Archaeological recording of the wrecks of carvel-build ships*, BAR International Series 183, 1983, p. 24.

³⁶ All the statistical numbers were taken from the official website of the Central Statistical Office: <<http://stat.gov.pl/>> and from the website of Polish Maritime Economics: <<http://www.portalmorski.pl/>>.

Polish waters. They memorialize and symbolize the Baltic waters as place of trade roads and battle fields.

It all together builds up a strong relationship between Polish nation and the Baltic Sea. As the proof the “*Anthem to the Baltic Sea*” written after Poland got its independence must be quoted:

You are the guardian of Polish Boarders [...]
And we will never give you back
Not until you turn into red of our blood.
Because you bring to live
The Polish folks golden dream³⁷.

Maritime as an adjective should be understood as more than only water and the environment it creates. The maritime significance is a relation between people and the sea. All the actions that for years were undertaken in order to protect it, to benefit from it and to respect it, constructed the existing importance of the Puck Bay.

THE MARITIME SIGNIFICANCE OF THE PUCK BAY, POLAND

The following paper is written in order to call attention to the most interesting and important features of the Puck Bay, Poland. As a starting point geographical background is presented that is followed by the biological significance of the described region. Those 2 are the most important features that created the suitable conditions for newcomers to settle there already in the Neolithic times. The inhabitation of that area lasts until nowadays. All together with its localisation and important part during the history of Poland it became the symbol maritime significance for Polish nation. The presented article was written to highlight the most significant aspects of the Puck Bay. It is used as a starting point for more detailed research.

³⁷ Translated by author.