

# PRELIMINARY REFLECTIONS OF 1<sup>ST</sup> BIODIVERSITY RESTORATION PROJECT IN POLAND

Grzegorz Różyński, Inst. Hydro-Eng., Polish Acad. Sci. [grzegorz@ibwpan.gda.pl](mailto:grzegorz@ibwpan.gda.pl)

## INTRODUCTION

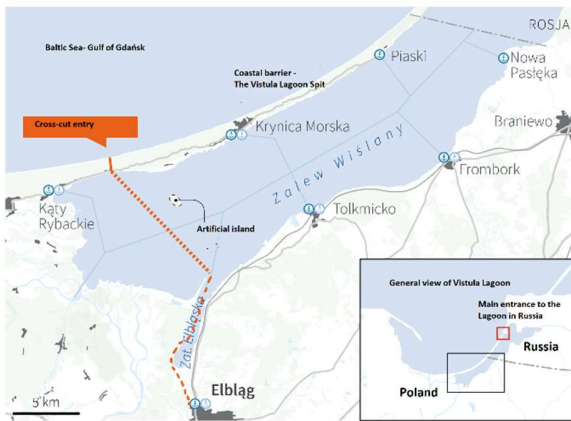
The outbreak of war in Ukraine severed all contacts between Poland and Russia, incl. the area of transboundary Vistula Lagoon. Fortunately, it coincided with the completion of independent passage from the Baltic Sea to the lagoon from the Polish side. The sediment dredged during construction was and is deposited on an artificial island, which was intended to serve as safe haven for targeted birds and thus became the 1<sup>st</sup> biodiversity restoration project in Polish coastal areas. Initial concepts of this scheme were presented in Różyński and Szmytkiewicz 2023 - in brief they assume management of the island as grassland and prevent spontaneous succession of vegetation to discourage overabundant cormorants. The current work demonstrates first reflections on actual performance of the island (still under construction!) as bird sanctuary.

## STUDY AREA

Fig. 1 presents the Polish part of Vistula Lagoon and shows the area of cross-cut through the barrier, the new navigational channel to a harbor in Elbląg city, ensuring its access to the Baltic Sea (aimed at its economic re- invigoration), and the location of the artificial island.

New navigational route from Baltic Sea to Elbląg harbor to ensure independent access of 100 m long, 20 m wide and 4 m deep vessels (5,000 DWT) to Elbląg as feeder port to large Polish ports.

— Cross-cut through the Spit    ····· New waterway    — Existing waterways    ● Local ports and wharfs    ● Passenger wharfs



Source: Maritime Office in Gdynia

Figure 1 - Study Area

## CURRENT SITUATION

The island is an ellipse with the longer axis of almost 2 km and the shorter one ca. 1.2 km; it occupies 180 ha. 3.3 million m<sup>3</sup> of silt and mud was deposited by Oct. 2023 and additional 2.1 million will be added by the autumn of 2024. As a result ca. 20% of the area is now a dry land and in most of the remaining part the water column depth is well below 1 m. Such conditions allow for preliminary assessment of the performance of

biodiversity restoration knowing that we are still far away from achieving the ultimate targets, namely the re-appearance of birds nesting on meadows, *i.e. snipes, northern lapwings and redshanks*, not to mention the most ambitious challenge - *shelducks*.



Figure 2 - Drying silt on the island in Jul. 2023, photo. G. Różyński

Fig. 2 shows the recently deposited silt with low organic matter content below 5%, which is much less than initial estimates predicted. Thus, its consolidation time (reduction of moisture content over time) will be rather short and spontaneous appearance of grass can occur sooner than expected. This is positive from the point of view of the major restoration goals and points to potential success of the scheme in future. However, the current conditions favor birds which were not targeted for restoration. Some of them are quite rare in the area though, and hence, unexpectedly, they have become a restoration target as well.

The most abundant birds that use the island in its current shape are *seagulls and terns*, who use the island mostly for rest; they usually occupy the rim of the island. Some resting *cormorants* can be spotted as well, but the absence of trees prevents them from hatching, which is consistent with the key management concept of the island. Targeted, but less challenging wetland birds, namely *bean, graylag and white-fronted geese and ducks (northern shoveler and widgeon)* were also observed, and it remains to be seen whether they will choose the island for hatching, which would fully confirm the restoration success. Rather unexpected observation results included several pairs of *herons*, who are known to be present in the area, but were not targeted for

restoration. Anyway, their presence should be deemed positive, as it signifies the growth of biodiversity of the Vistula Lagoon. Yet more surprising are the observations of several pairs of *white-tailed eagles* on the island. They are known to be present in the area in small numbers, but the absence of high trees, used by them for habitats, means they will be neither hatching nor nesting on the island - their visits are probably primarily driven by easy access to prey for such powerful predatory birds. Therefore, their presence should be regarded very positive, because, in the absence of predatory mammals, they operate as cullers and keep the bulk of bird population on the island healthy. On the other hand, their number is too low to cause substantial damage to healthy specimen. It therefore appears that a good balance between predation and reproduction can be achieved naturally.

The most positive result of the so far performance of the island as bird sanctuary is the presence of waders. They have not been designated for restoration, but the unexpected success *Dunlins* have become ubiquitous populating the drying silt in great numbers. Not being endangered, they substantially add to general biodiversity of the area.



Figure 3 - Dunlin - new inhabitant on the island



Figure 4 - Kentish plover - most precious restoration success so far

The most precious new inhabitants are the *Kentish plovers*. According to the recent reports only some 90 pairs are normally observed in the Polish coastal areas, and hatchings are even more rare. The presence of those rare birds should be retained on the island, so it appears that the general strategy of the management of the island should be updated - see conclusions.

#### CONCLUSIONS

The so far monitoring of the emerging artificial island on Vistula Lagoon points to a general success of the concept of bird sanctuary with complete access restriction for lay people and general isolation of the island from predatory mammals; the island is already used by huge flocks of birds for resting.

Some targeted birds (ducks and geese) have already appeared on the island - it can be expected they will start hatching when grass, planted either spontaneously or artificially, begins to take root. This process can start earlier than expected due to faster than initially estimated reduction of moisture content in the deposited silt.

No shelducks have appeared so far - this can only occur when artificial nesting boxes are built, which is premature at the time this manuscript was written.

The waders have found a perfect habitat, evidenced by ubiquitous dunlins and much rarer Kentish plovers; especially the presence of the latter is a great success, since their population in Polish coastal areas is very low. If they begin to hatch on the island, then a very important progress in biodiversity restoration in Poland is achieved. The success of the waders points to a possible change in the ultimate management plan of the island. Initially, designated for grassland, a larger part of the island might remain a mudflat, fed by the dredging maintenance works of the navigation channel from the Baltic Sea to Elbląg harbor, cf. Fig. 1. In this way the subsistence of waders would be sustained.

Another initially missed ecosystem function is provision of resting grounds for birds not intended to hatch on the island. They make use of its isolation from the land. Also, they attract large birds of prey (white-tailed eagles) who will fulfil the culler function and secure the health of the entire bird population without significantly reducing their numbers.

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