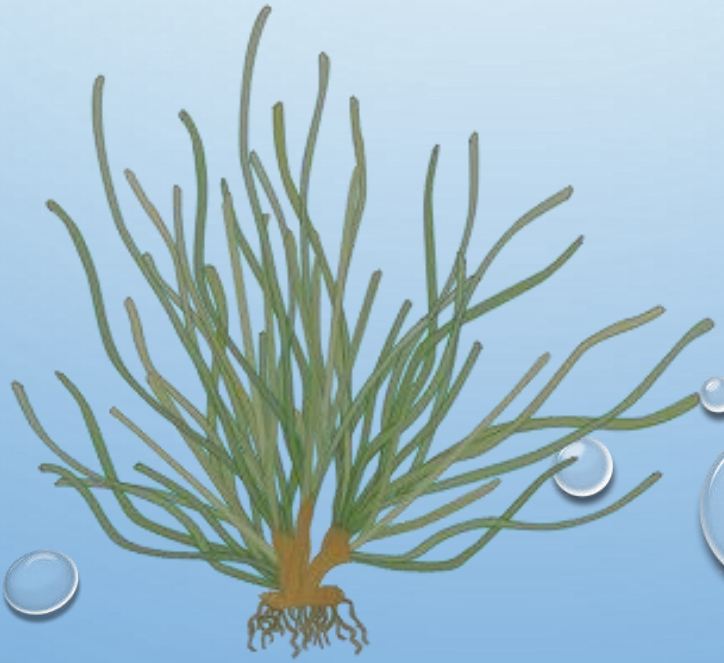
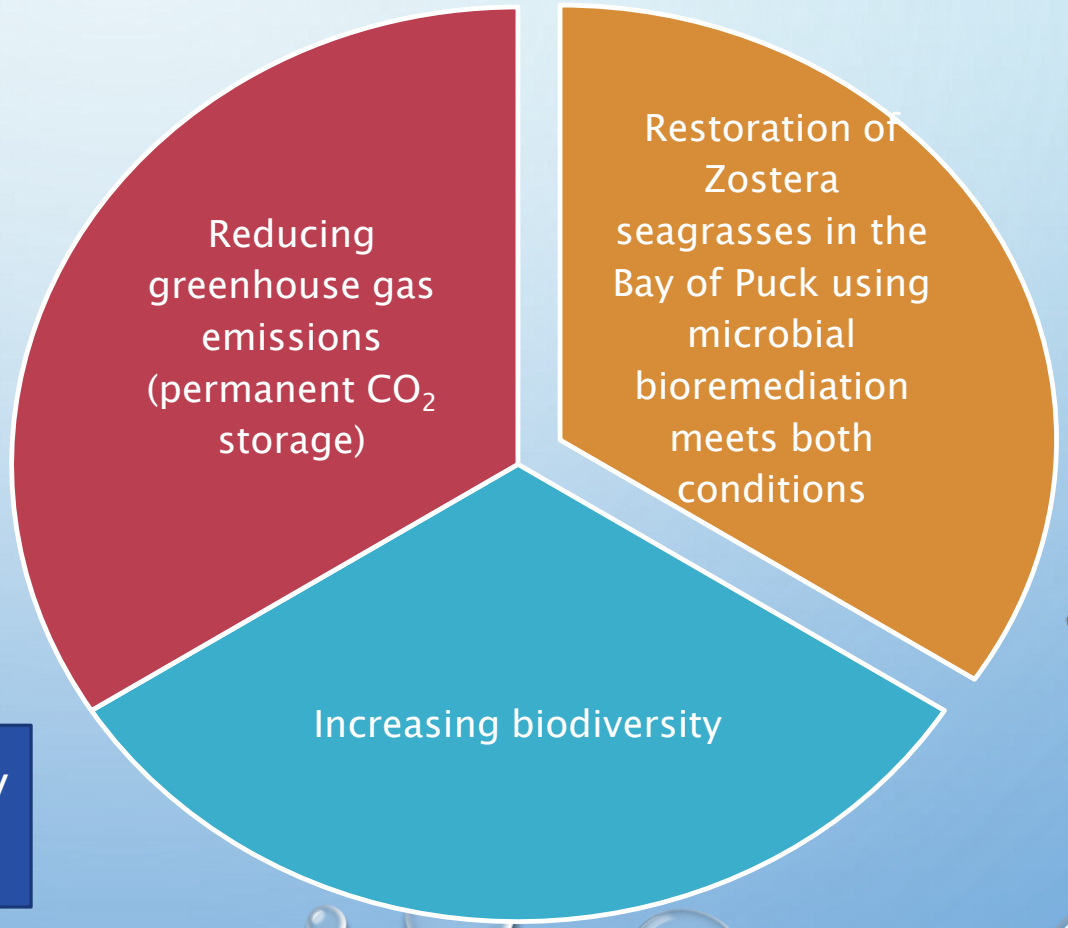
RESTORATION OF ZOSTERA SEAGRASSES IN THE BAY OF PUCK



RESTORATION OF ZOSTERA SEAGRASSES IN THE BAY OF PUCK

Reducing climate change resulting from global warming can be achieved by:



1 km^2 of Zostera seagrass can permanently store 20-80 thousand tons of CO_2

- Reuters reports, citing calculations by its analytical unit Refinitiv, that the value of the market for CO_2 emission permits rose **by 164%** last year to a record **€ 760 billion**.

The biggest contributor to the increase was the European market for emission rights, EU ETS, which has been operating since 2005. It accounted for **90%** of the global market value, i.e. **€ 683 billion**. At the end of the year, the price of the emission rights listed there was over **€ 80 per 1 ton.**

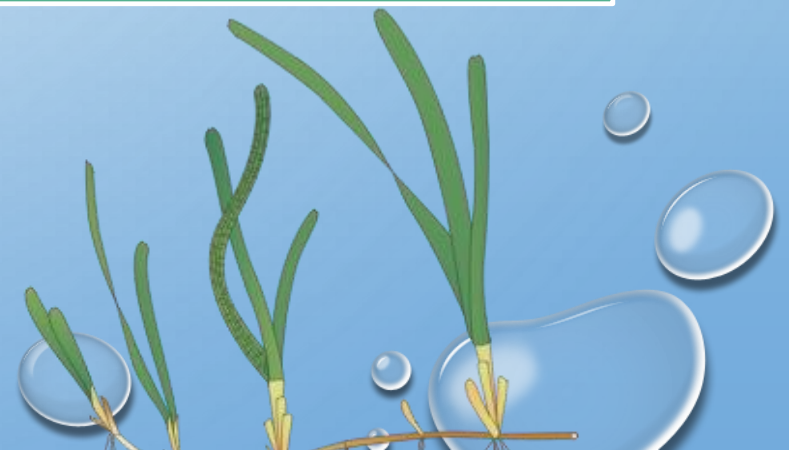
Source: Puls Biznesu

THE CURRENT COST OF CO_2 REDUCTION PER CAPITA OF POLAND IS **78 EUR**.

GDYNIA HAS 250,000 INHABITANTS X EUR 78 = **EUR 19,500,000 PER** YEAR.

= **10 KM²** OF RECOVERED GRASS

1 km² of Zostera seagrass can permanently store 20-80 thousand tons of CO_2

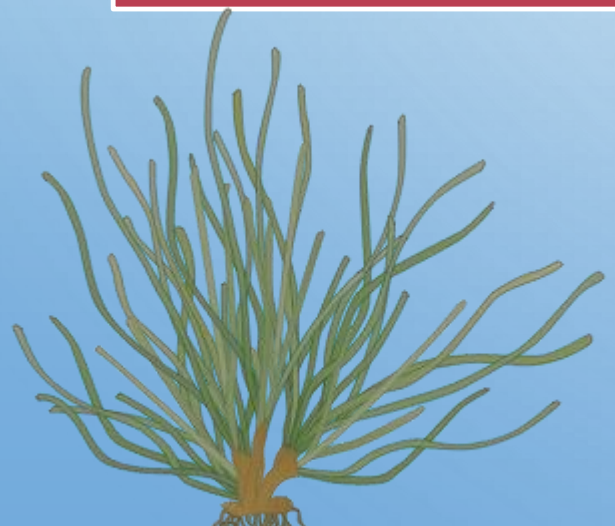


ZOSTERA GRASS IN THE BAY OF PUCK

1957 (after Ciszewski 1962)

1984 (after Plinski 1986)

A holistic approach should be used to restore Zostera grass.



Examples of the return of seagrasses have been reported:

- where water quality was found to be improved;
- incoming biogens have been reduced as a result of regulation in water and wastewater management;
- anthropogenic pressure was reduced.

The project will be executed by using the technology of Eco Tabs in the process of microbial bioremediation

Bioremediation – a range of treatments which stimulate indigenous microorganisms to rapidly degrade hazardous pollutants (mainly organic) **in situ** to a level safe for organisms.
https://encyklopedia.pwn.pl/encyklopedia/Bioremediacja.html

1957 (after Ciszewski 1962)

Restoration of water and sediment to the status from 1957

1. Bioremediation of Bay waters and sediments
2. Biofilm in the sewage network – **ZSOŚ –**

The project consists in improving water transparency in the Bay of Puck by using microorganisms that will perform microbial bioremediation of Bay waters and sediments and create a biofilm in the sewer network in the localities that discharge treated wastewater into the Bay, through the initiation of the

Integrated Wastewater Treatment System, described on the website

www.ecolifesystem.com.pl

The treated wastewater discharged into the Bay will contain bacteria multiplied during the wastewater treatment process, which also thrive in salt water. Fresh water contains several thousand times more bacteria than salt water. **1000 m^3 of treated wastewater will provide the bay with the equivalence of 1,000,000 – 4,000,000 m^3** of water, with beneficial microorganisms stimulating the process of eliminating pollutants accumulated in sediments and waters.

The treatment plants located on the Bay of Puck discharge between **1,000 and 10,000 m³** of wastewater per day.

The **PEWIK Gdynia** sewage treatment plant discharges approximately **50,000 m³** of sewage into the Bay.

The offer of cooperation and co-participation in the project will be addressed to companies which bear the costs of CO_2 emissions and have vested interests in the Baltic Sea: **PGNiG, ZE PAK, Clean Poland Program, and PEWIK Gdynia.**

Restoration of sediment and water in the Bay will provide an impetus for the return of sea grasses.

Project implementation period:

1. Initial phase: **3 years** – restoration of at least **1 to 10 km** ^{2} of Zostera seagrasses
2. Development phase until **2030** – restoration of the Zostera state from **1957**

Project implementation costs:

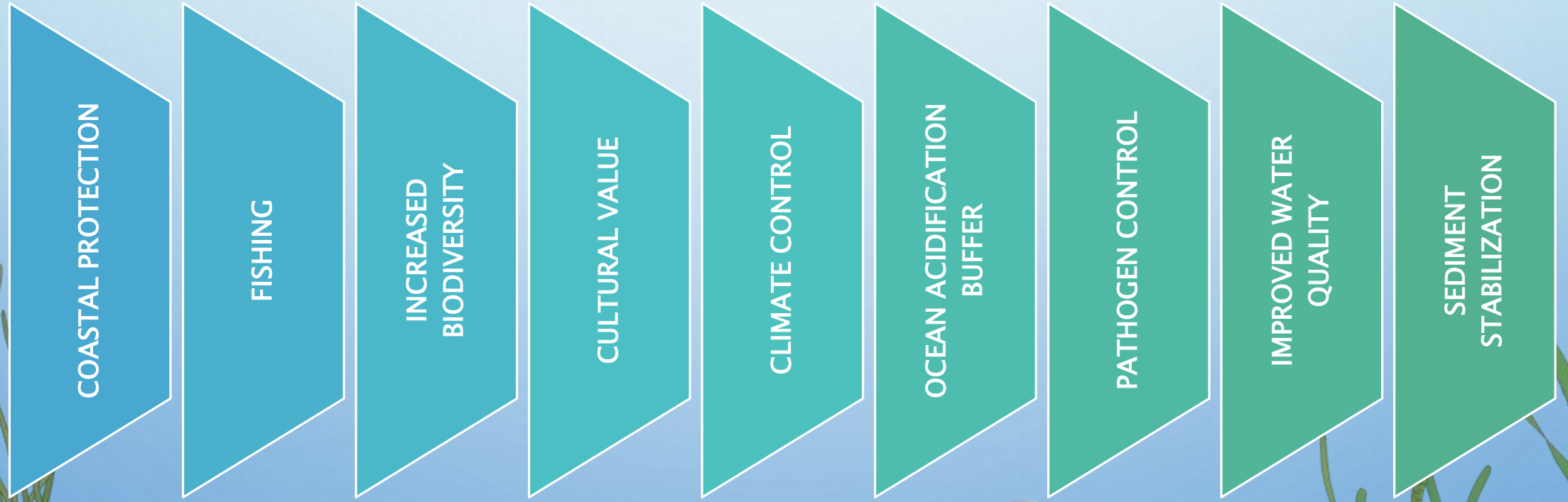
– dosing of **Eco Tabs** into the bay waters **1 km**^{2} **– € 1 million (PLN 4–5 million)**
– dosing of Eco Tabs to the sewage network to produce **biofilm – PLN 250 per 500 m**^{3} of sewage.

Revenues of project participants:

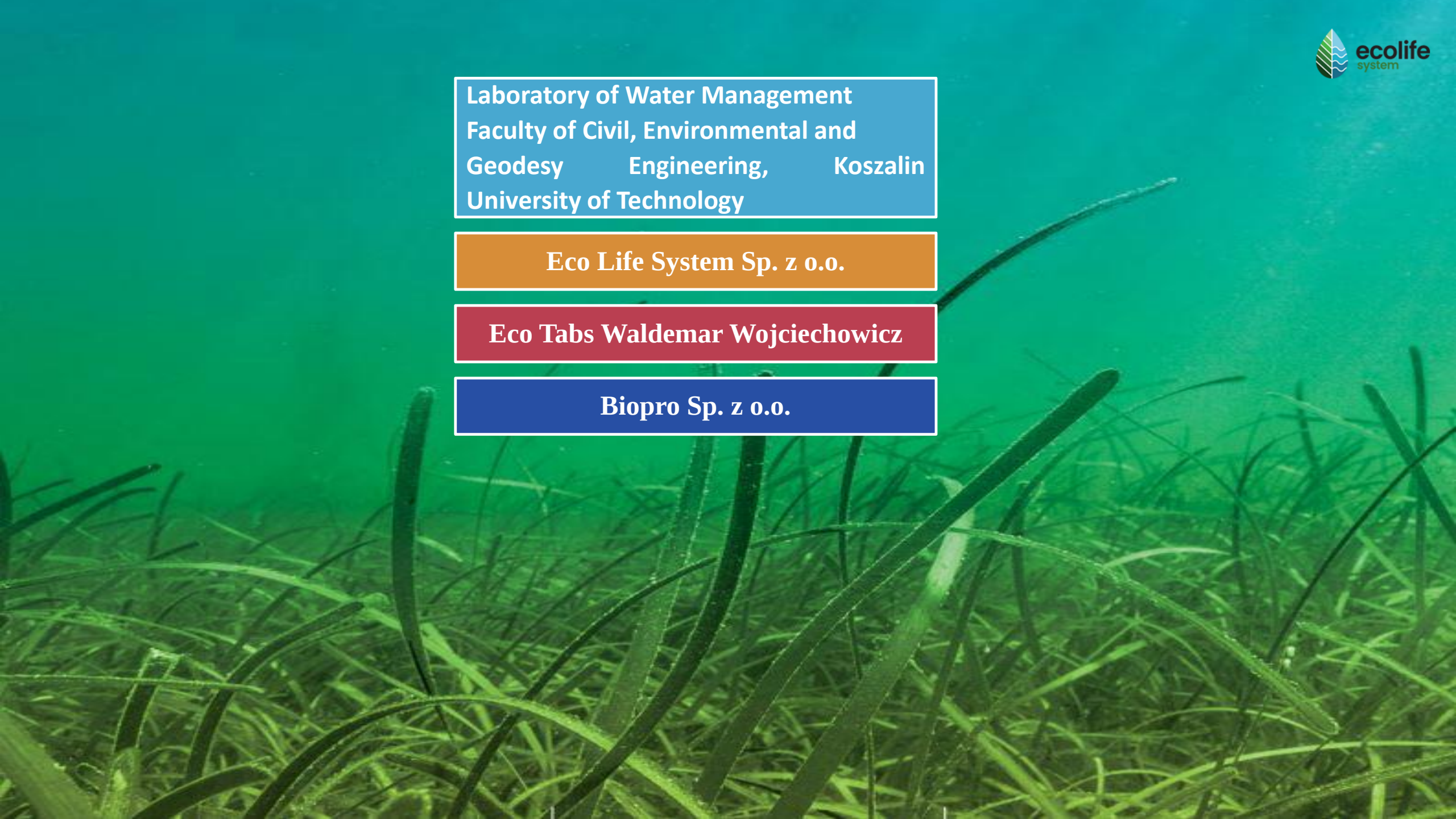
1. CO_2 sequestration:
   1 km^2 of Zostera can store from **20 to 80 thousand tons of** CO_2
   (current price is around **EUR 80 per tonne of** CO_2)
   1 km^2 of recovered grass has a potential revenue **of € 1.5 million to € 6 million.**
2. Savings of **10–20%** of costs in wastewater treatment plants:
   (belonging to cities, municipalities) participating in the project.

Other benefits of restoring grasses:

WHY ARE WE RESTORING ZOSTERA SEAGRASS? **Seagrasses are one of the most valuable coastal and marine ecosystems on the planet. They provide a wealth of highly valuable ecosystem services and benefits that significantly contribute to the health of our seas, our well-being, and the safety of coastal communities.**



The project contractors are companies that have carried out the largest project in Europe: "Restoring the biodiversity of the Skiertag Lake using microbial bioremediation" (Youtube – Skiertag. Biopro)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Biopro Sp. z o.o.