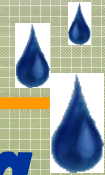


Aquatic Warbler

HYDRO monitoring



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Department of Hydraulic Engineering
and Environmental Restoration (DHEER)

- **Introduction**
- **Three – level monitoring system**
- **Cost estimates**
- **Summary**



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Three – level monitoring system

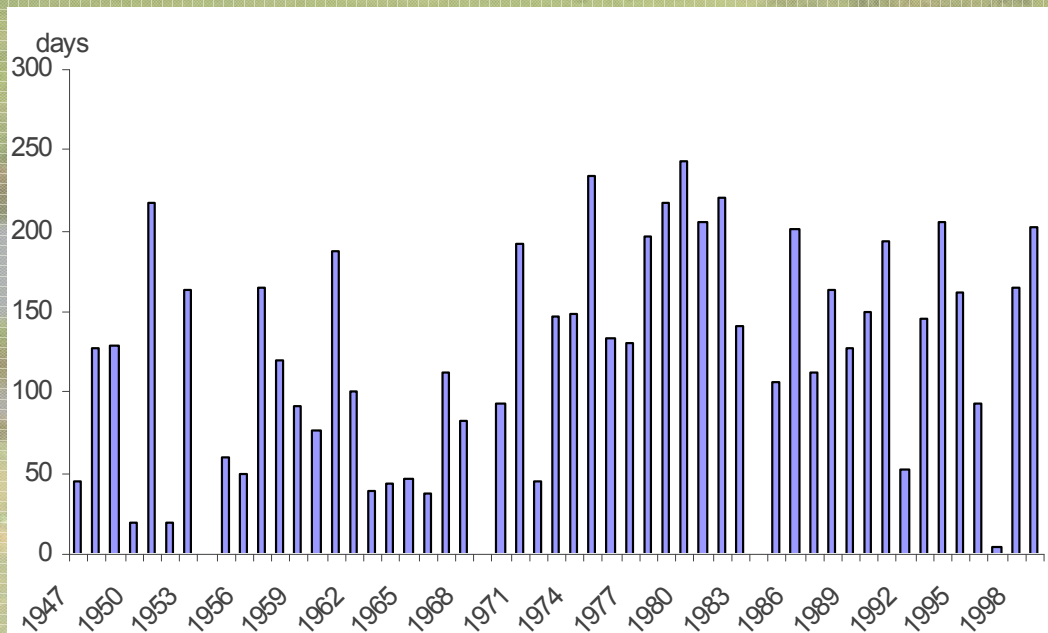
- **Regional monitoring**
- **Local monitoring**
- **Site monitoring**

Regional monitoring

An overview of historical and present hydrological condition

Multiannual historical data for

- surface water levels (II + vegetation period)
- precipitation (vegetation period)



IMGW gauges and available data:

Biebrzański National Park

- Burzyn

Karsiborska Kępa, Zajęcie Łęgi,

Woliński National Park, Rozwarowo

- Wolin on the river Dziwna: water levels since 1955

- Dziwnów on the river Dziwna: water levels since 1950

Krajnik

- Gryfino on the river Odra: water levels since 1947 or

- Widuchowa on the river Odra: water levels since 1947

Miedwie lake

- Okunica on the river Płoń: water levels since 1961

Peene Valley

- river Peene - ??? (maybe in Anklam)

Three – level monitoring system

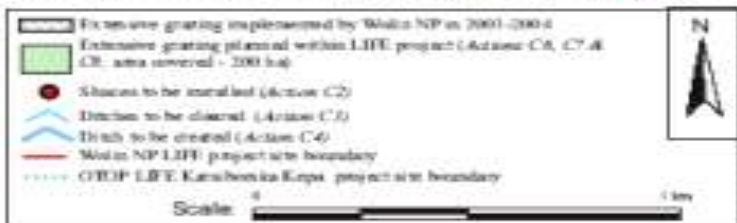
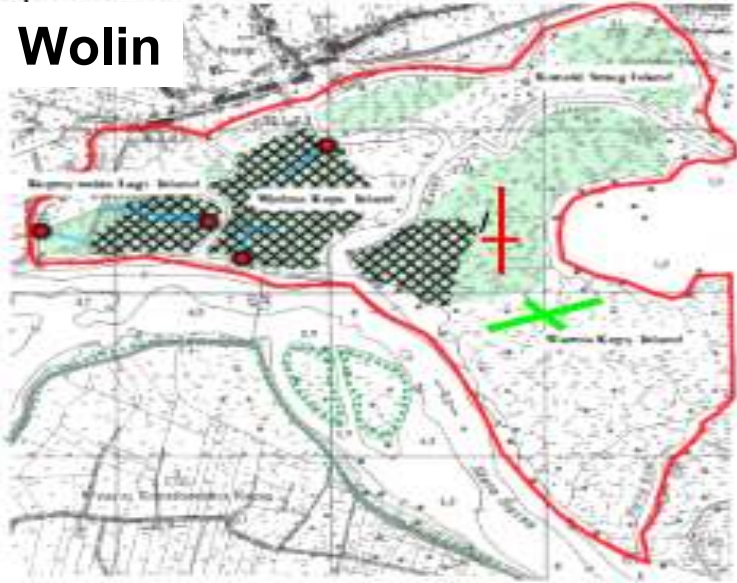
Local monitoring

Structures with potential impact

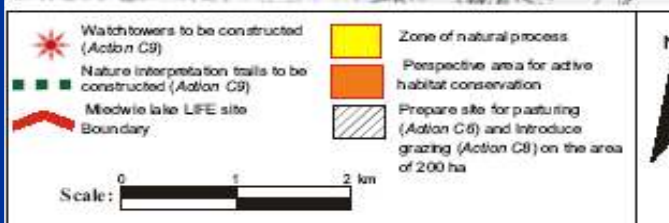
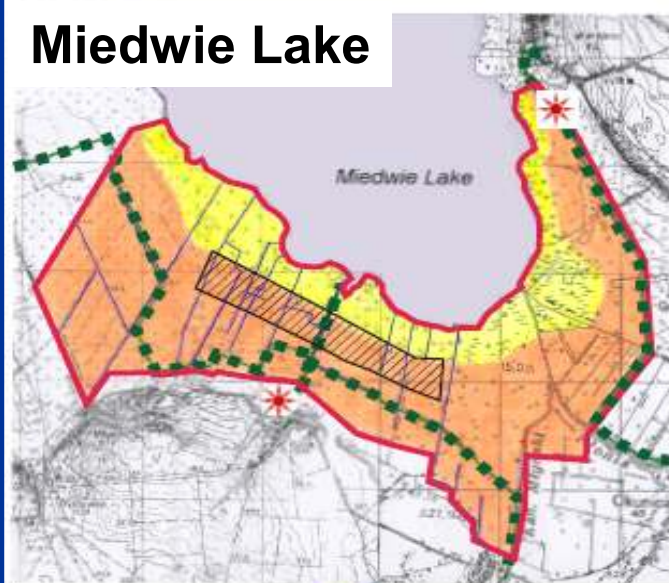
- Hydraulic structures inventory, which have a potential impact on monitored sites
- Maintenance activities (dredging, mowing, etc) which may have a potential impact



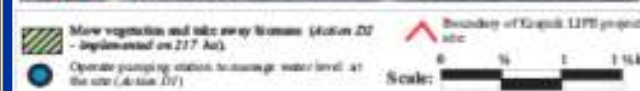
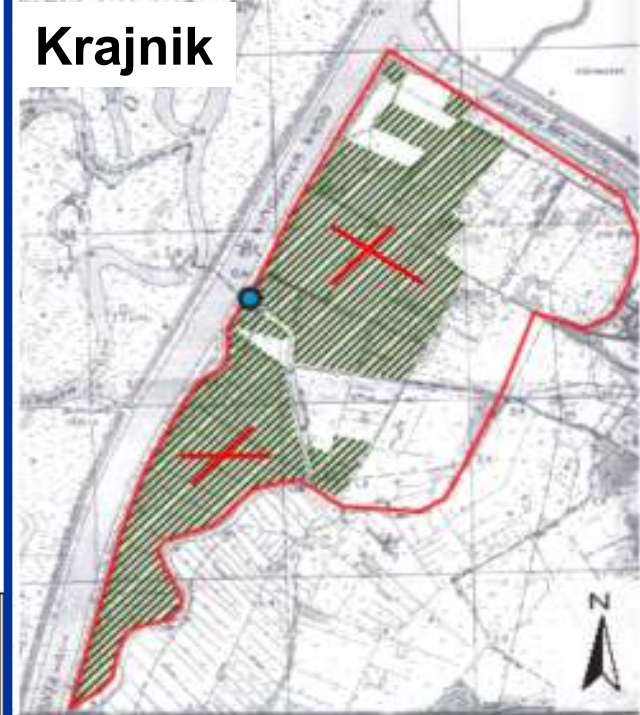
Wolin



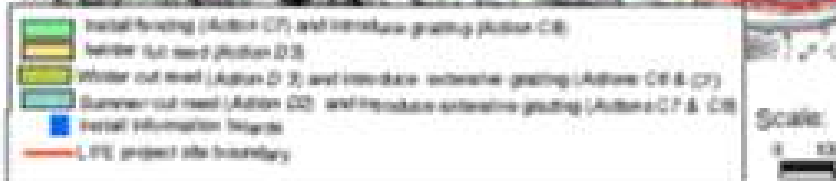
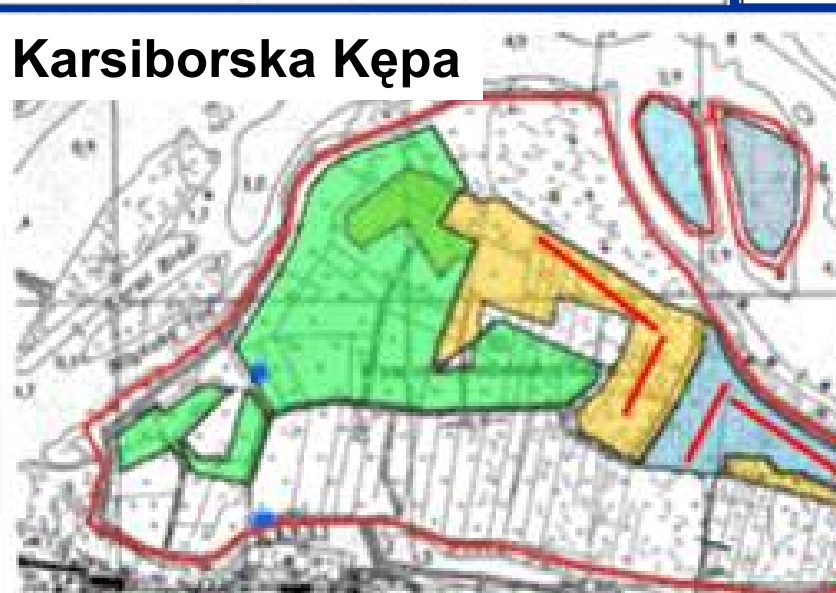
Miedwie Lake



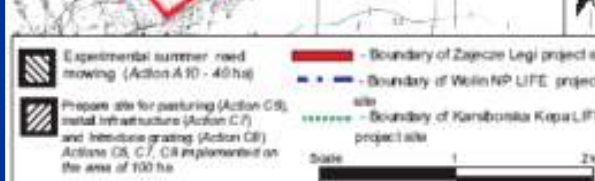
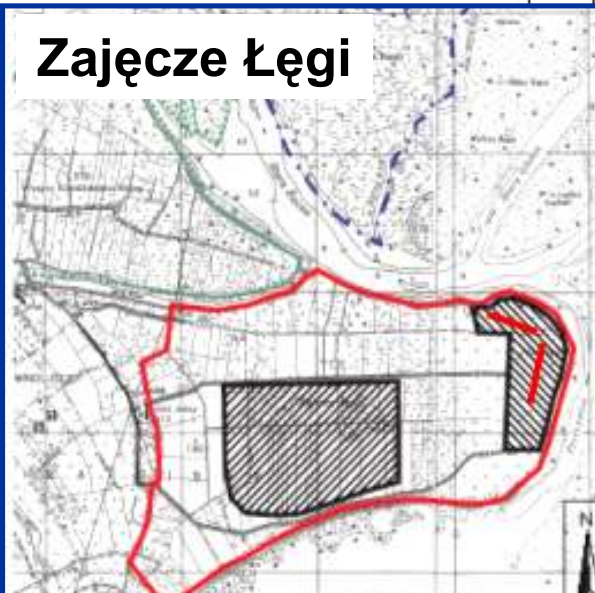
Krajnik



Karsiborska Kępa



Zajęcze Łęgi



Rozwarowo



Three – level monitoring system

Site monitoring

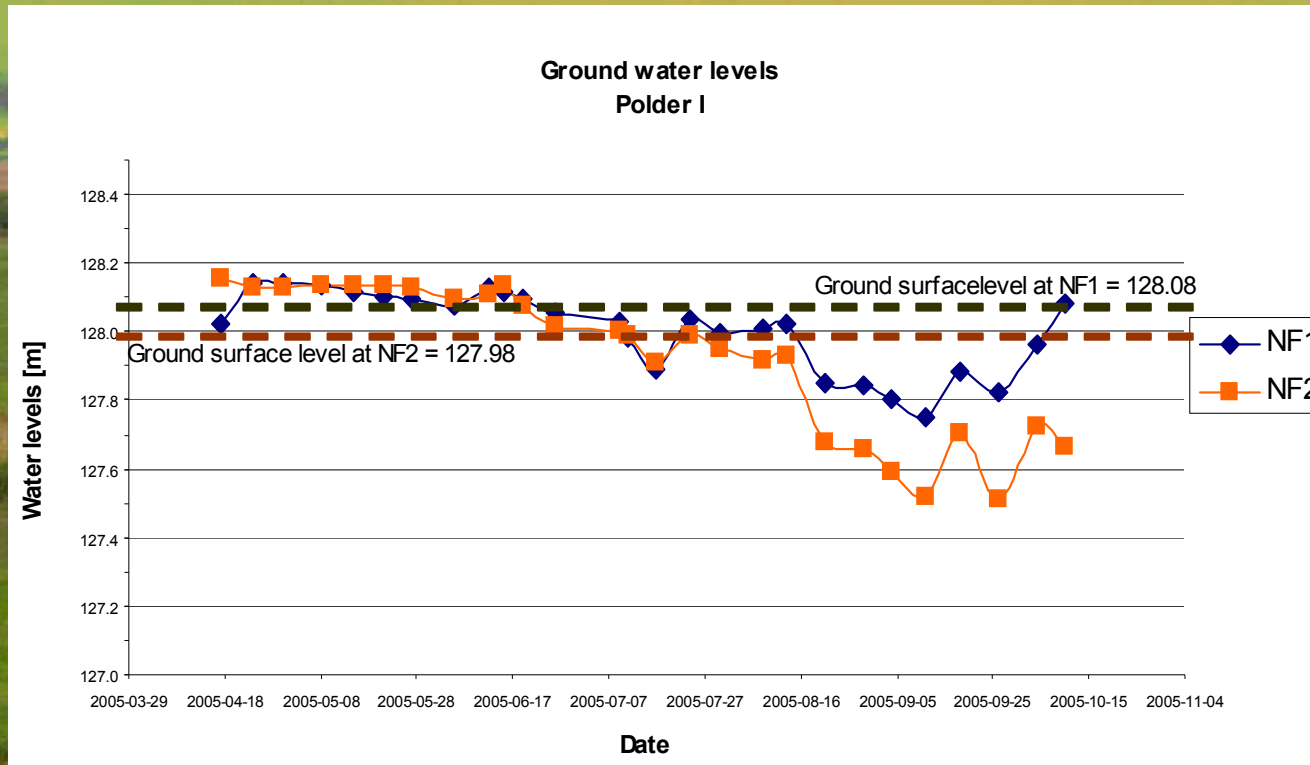
Ground and surface water level monitoring:

Piezometers on selected transects, observation in 10 days period

or equiped with d-divers



Results



Phragmitetum australis

Ribeso nigri - *Alnetum*



Sampling designs for individual project sites

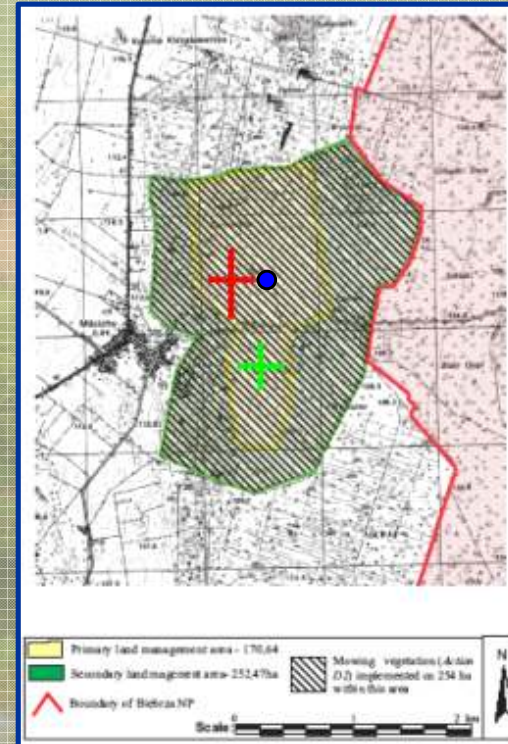
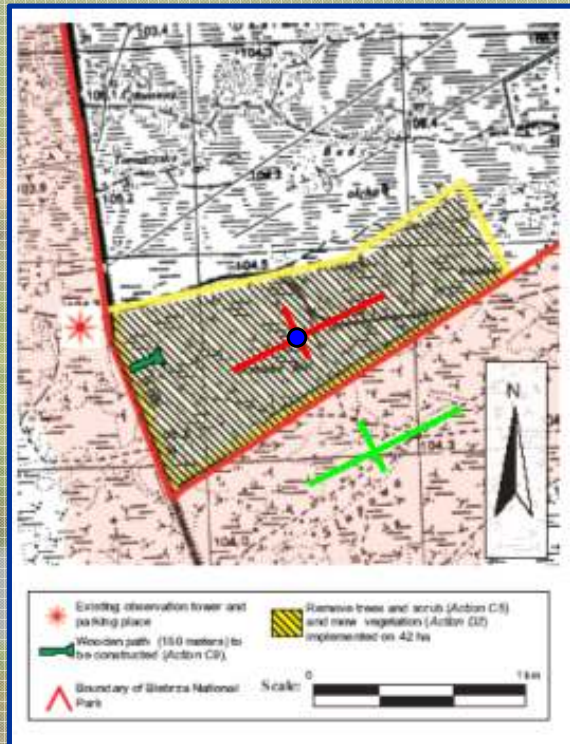
Biebrza National Park



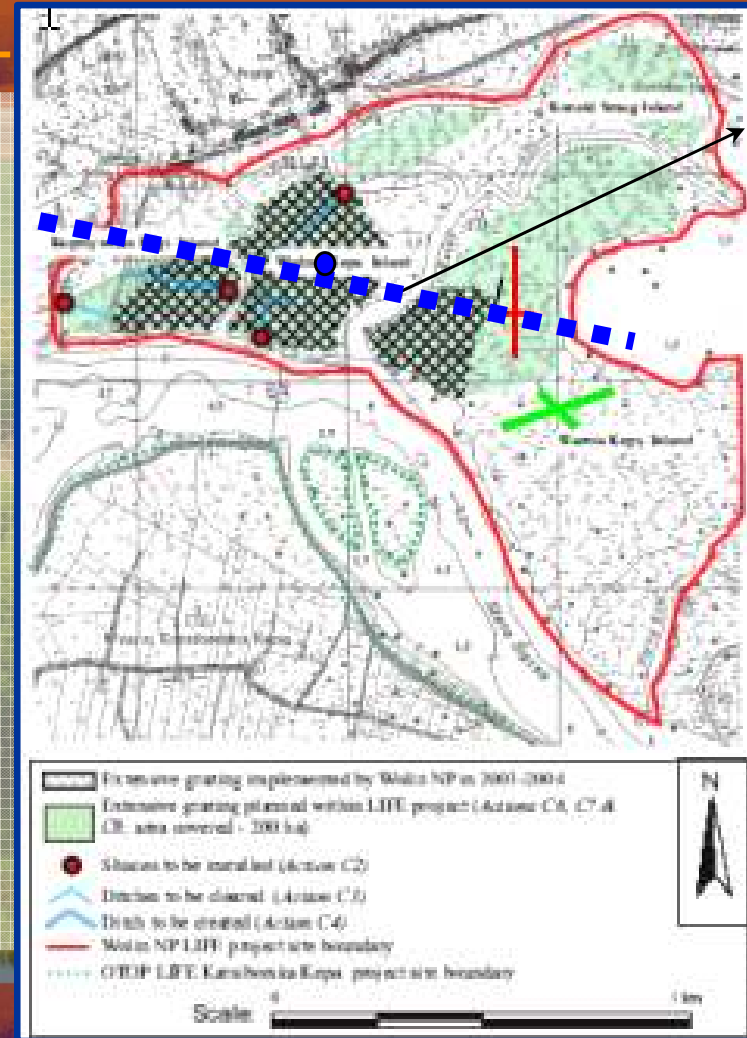
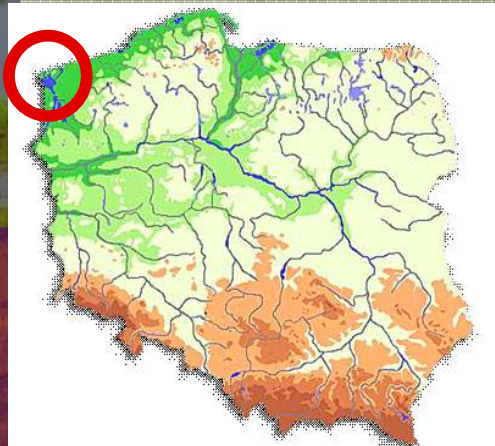
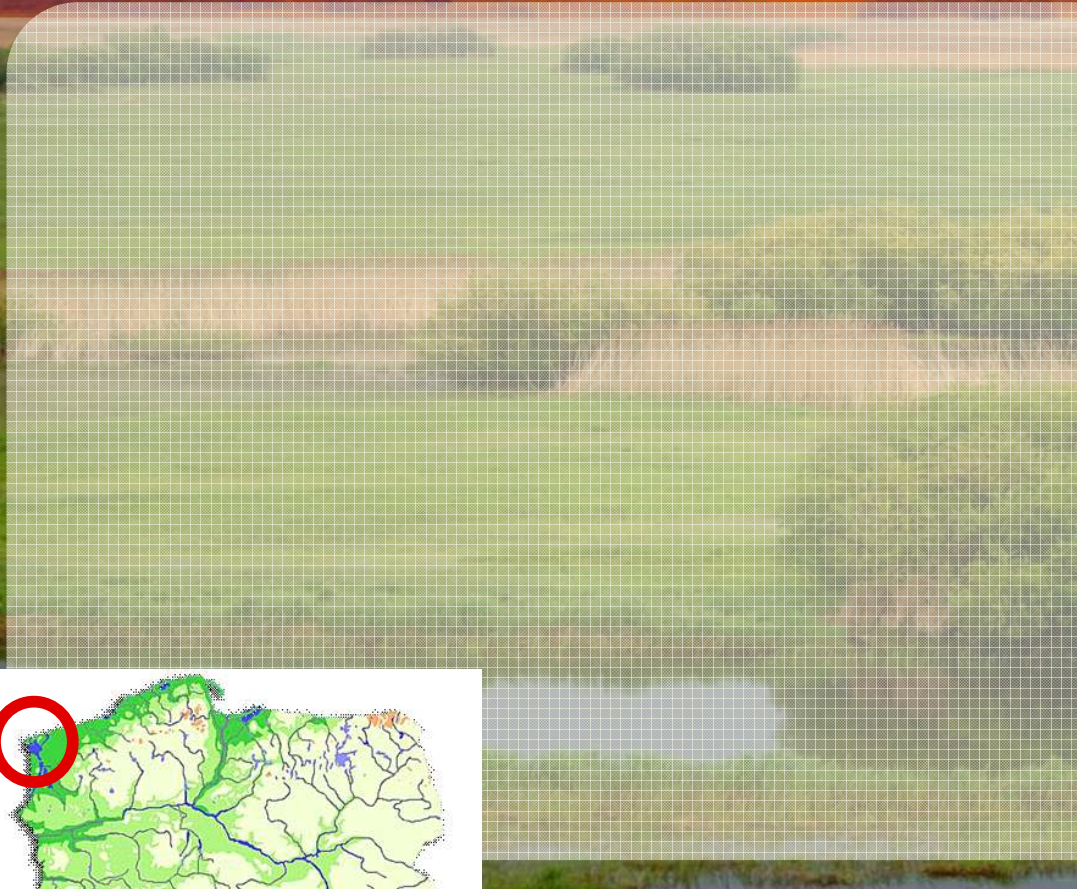
Existing piezometer with Diver

Sampling designs for individual project sites

Biebrza National Park

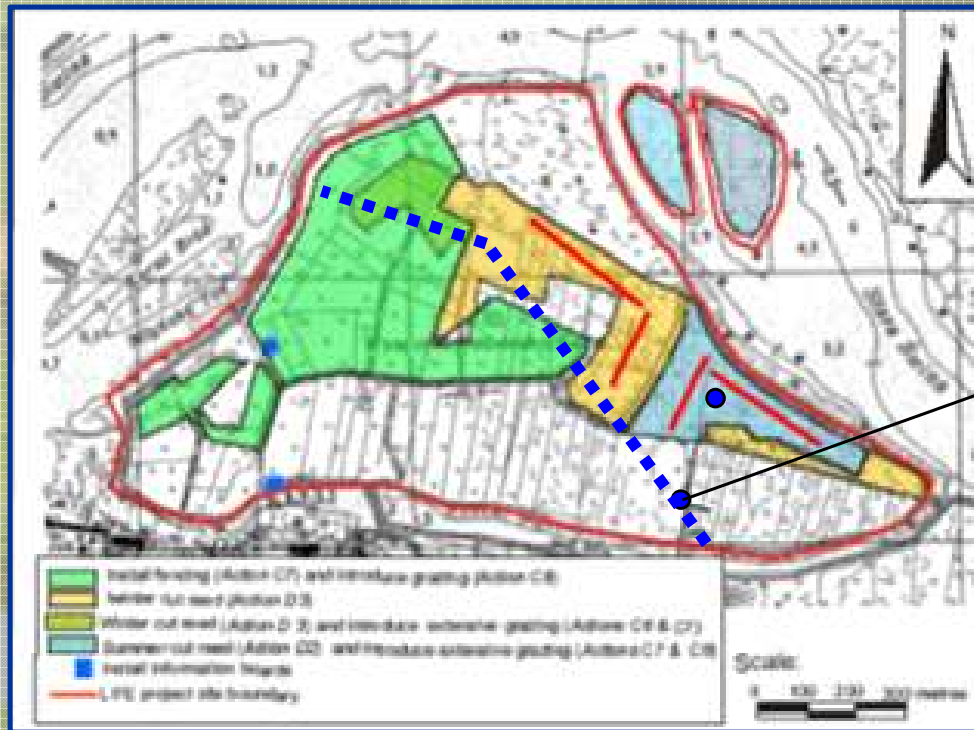
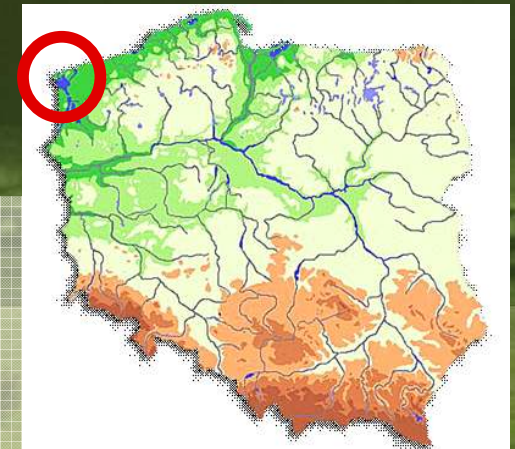


Wolin National Park



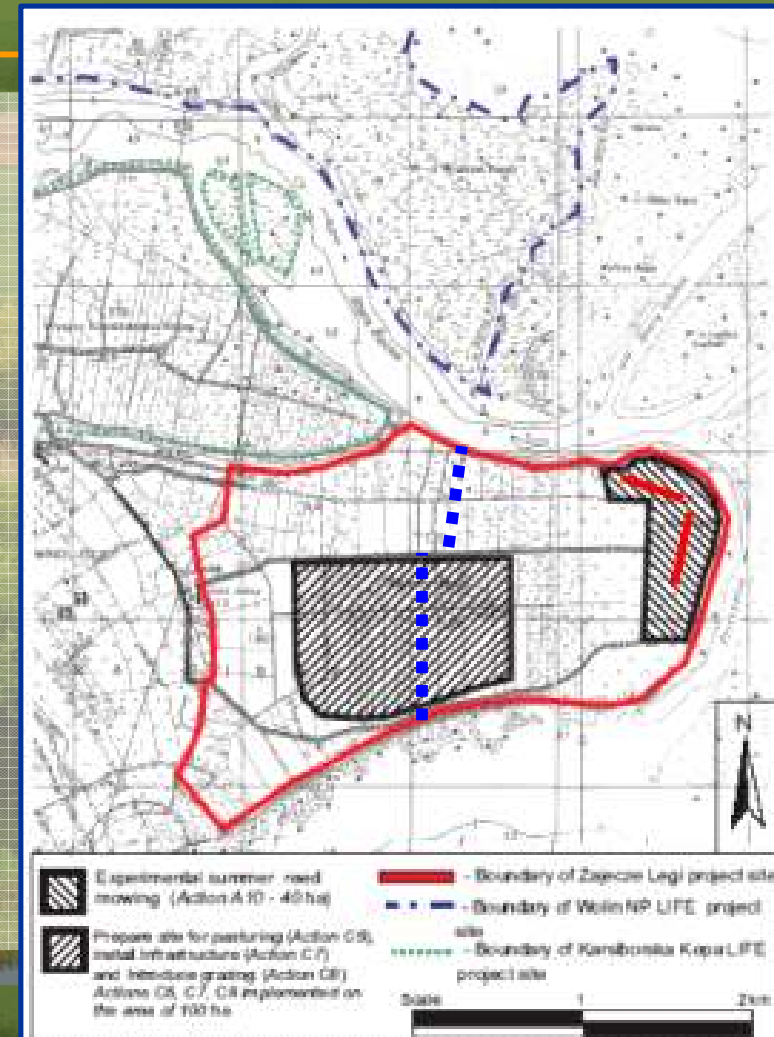
Sampling designs for individual project sites

Karsiborska Kepa

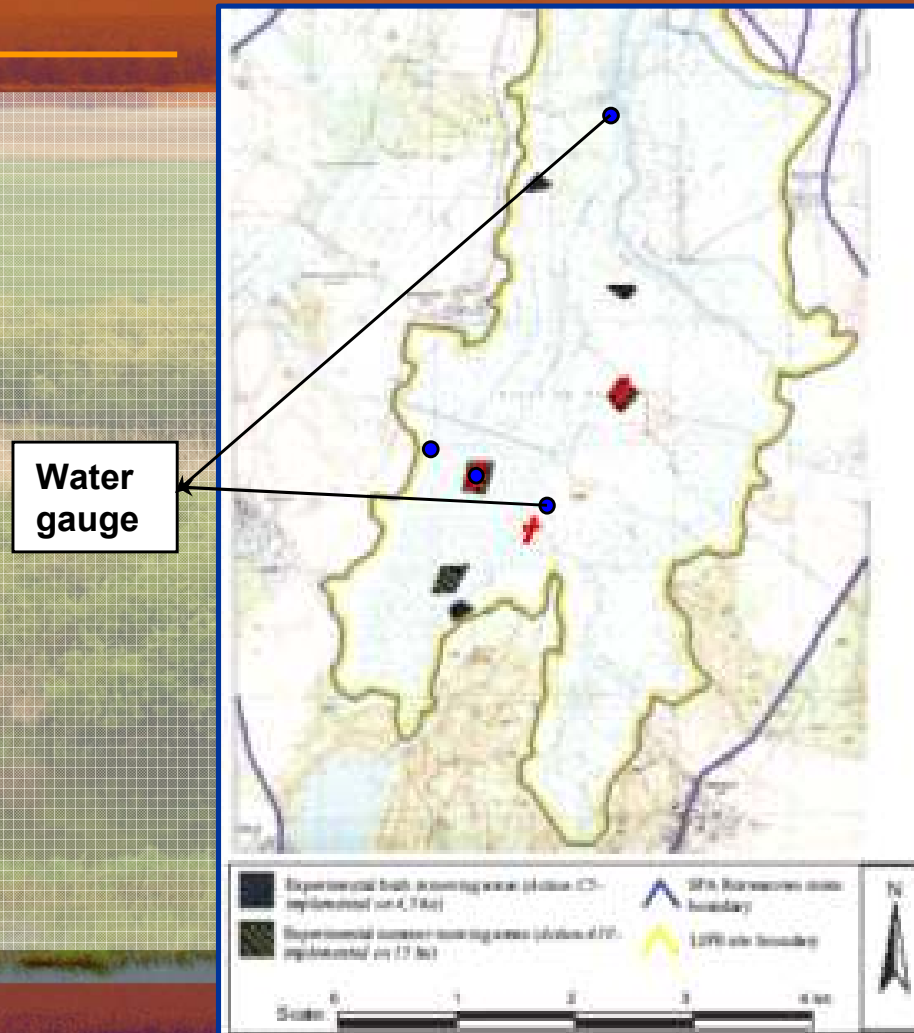
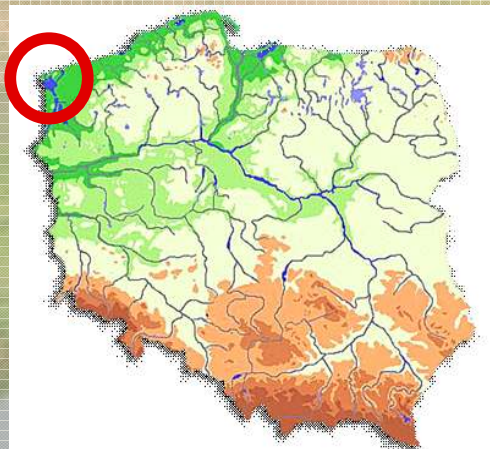


Water gauge

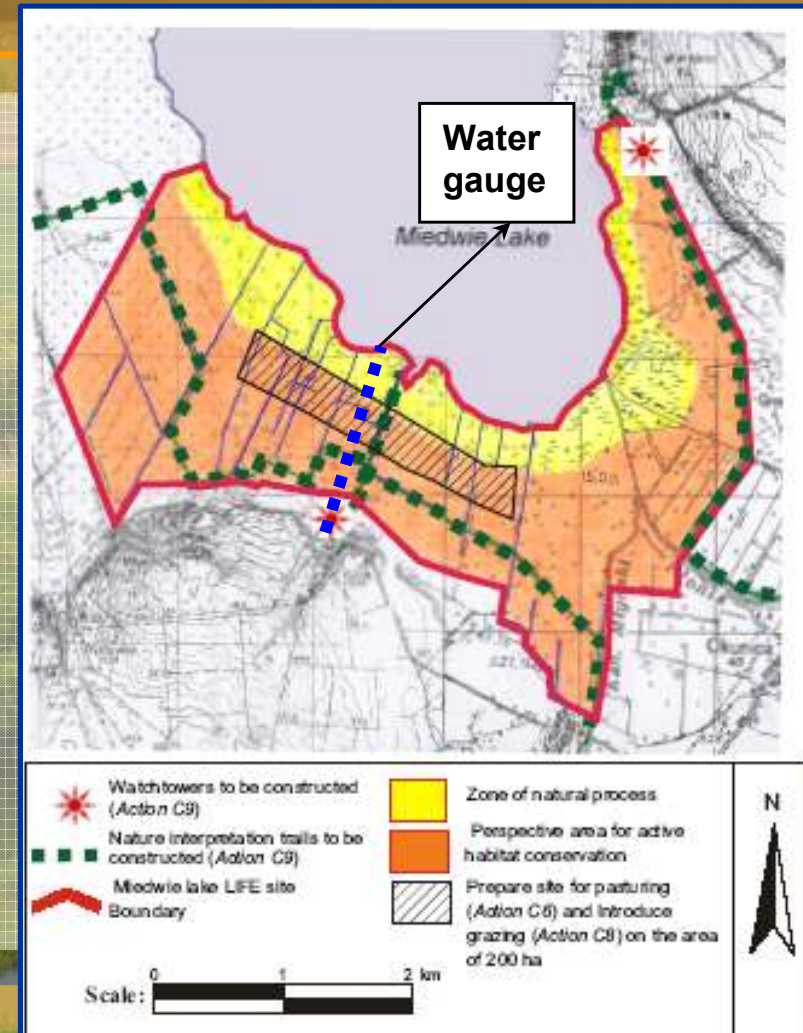
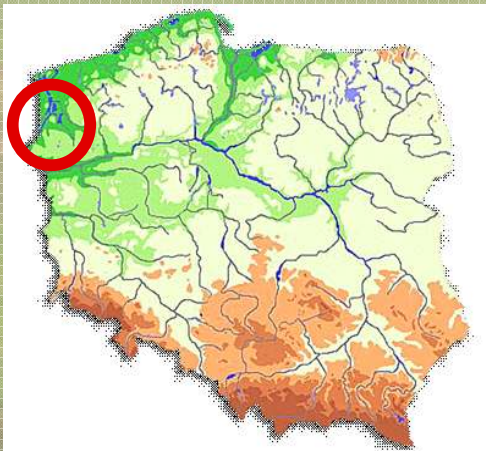
Zajęcze Łęgi



Rozwarowo

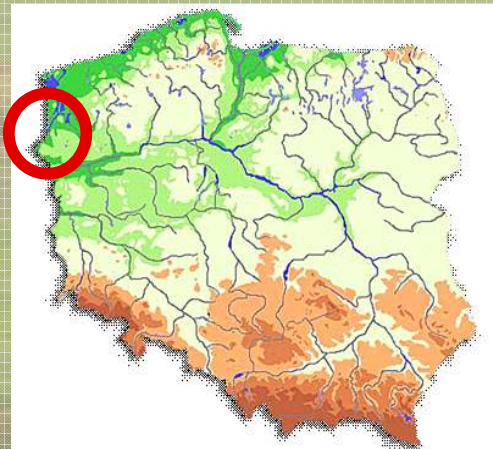


Miedwie Lake

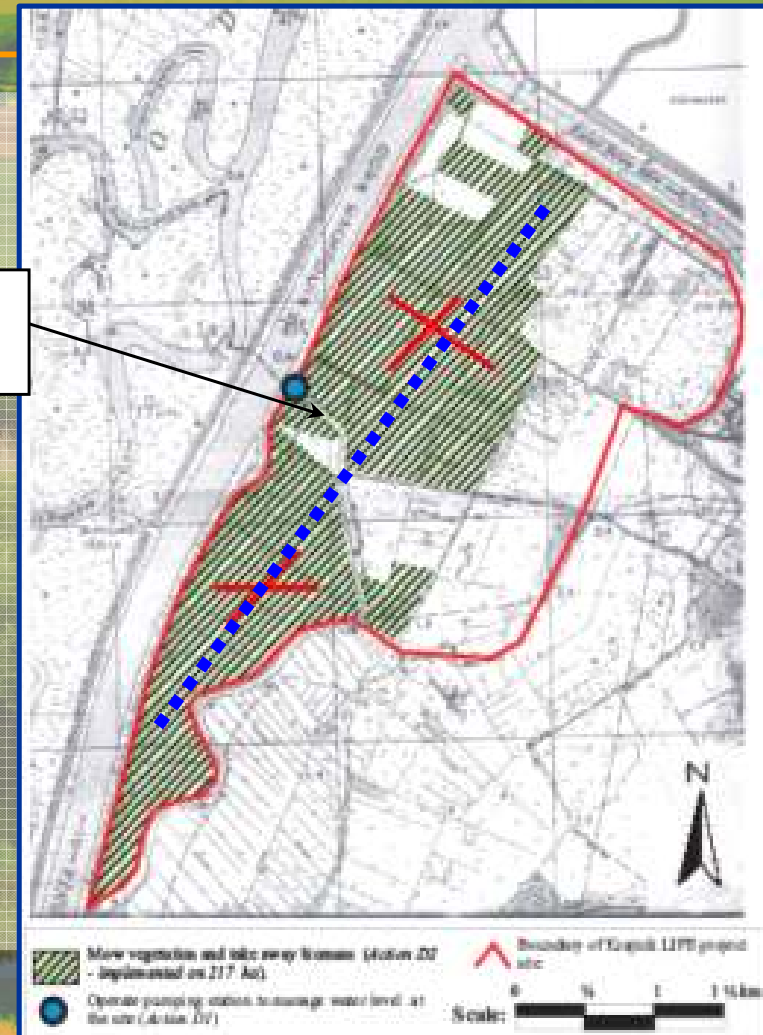


Sampling designs for individual project sites

Krajnik



Water gauge



- **Divers:**
5200 – 5500 zł
- **Piezometers:**
30 zł per 1 piezometer and 50 zł for establishment
- **Gauge:**
300 zł for 1 one meter of Gauge (1 mb) + 700 zł for establishment
- **Hydrometeo data: IMGW**
One value = 4 zł + VAT
- **Travelling costs: varies – depending if the specialist are coming from Warsaw or Szczecin (2 trips)**

- **Observation costs: (e.g. gauge observation 150/month)**

Summary

- Hydrological monitoring is not necessary for the AW survival
- It is useful for assessing the optimum habitat conditions
- Water is single most powerful tool for wetlands management
- Maintenance of monitoring network is more expensive than establishment
- Analysis ??!!!