Ohne uns läuft nix.

Berliner Wasserbetriebe

Rewetting of a transition mire by sprinkling with demineralised water

Bernhard Hasch, Berliner Wasserbetriebe, 09.03.2021

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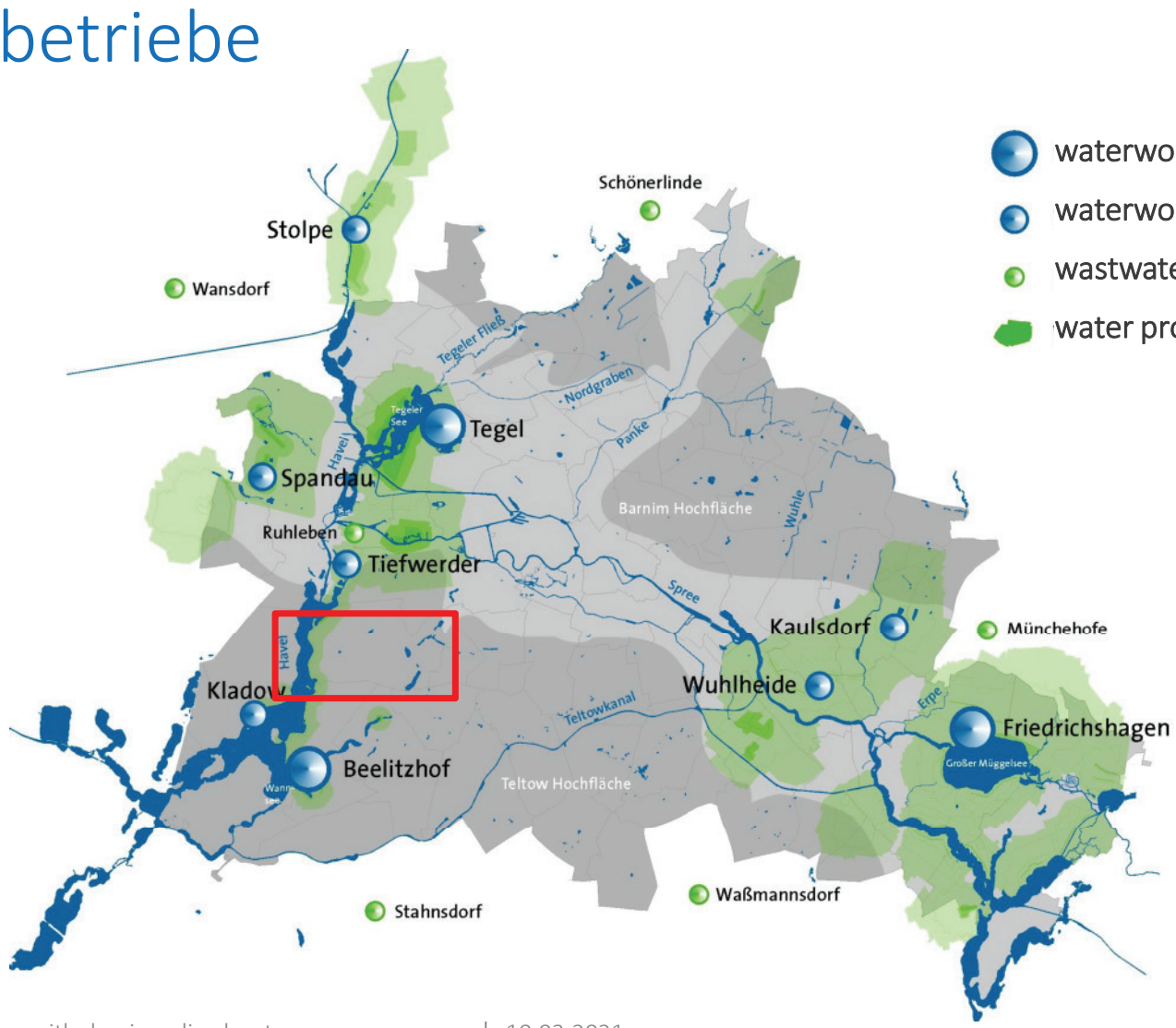
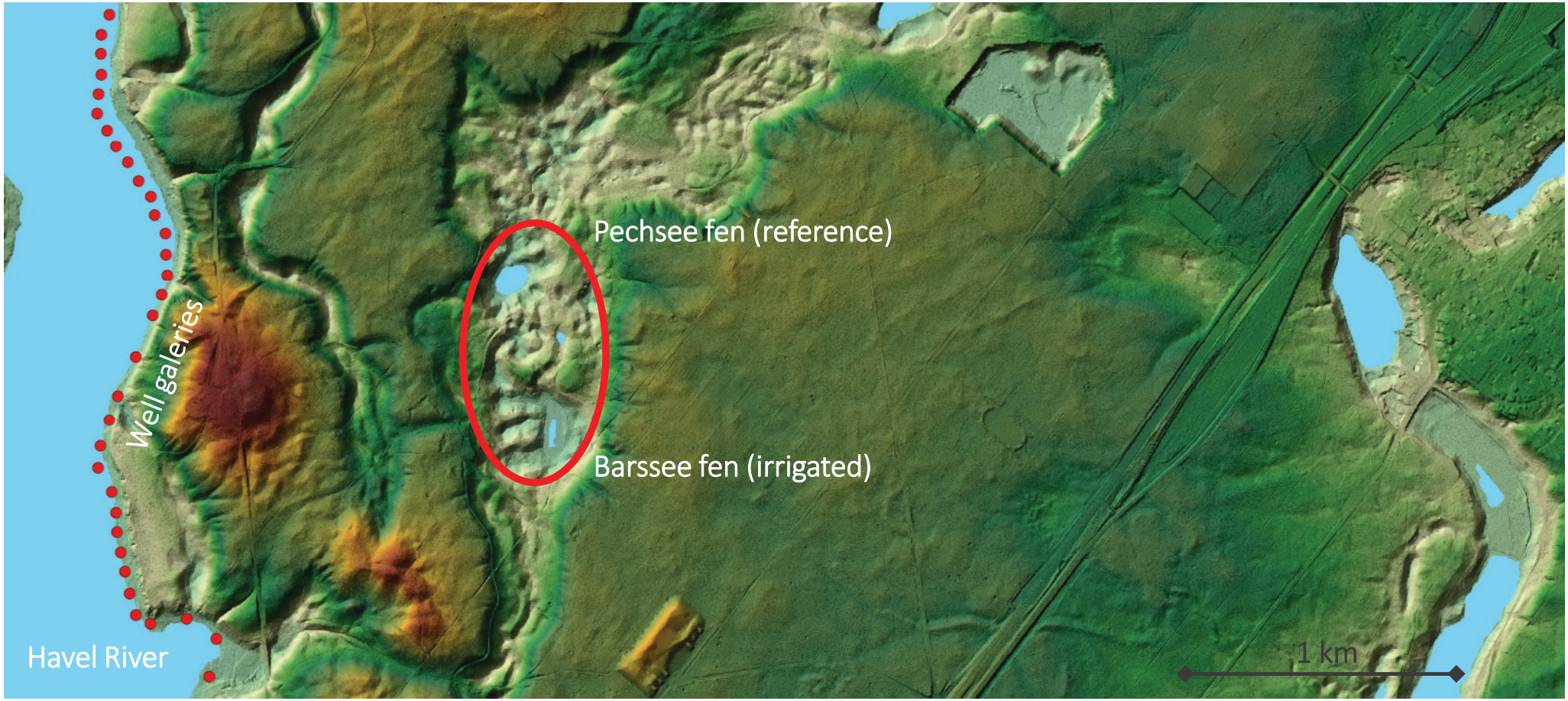


- 9 waterworks
- 220 M m³/a drinking water supply
- 650 deep wells

Barssee and Pechsee fen in the Grunewald forest



Map source: Geoportal Berlin / ATKIS DGM

Barssee fen

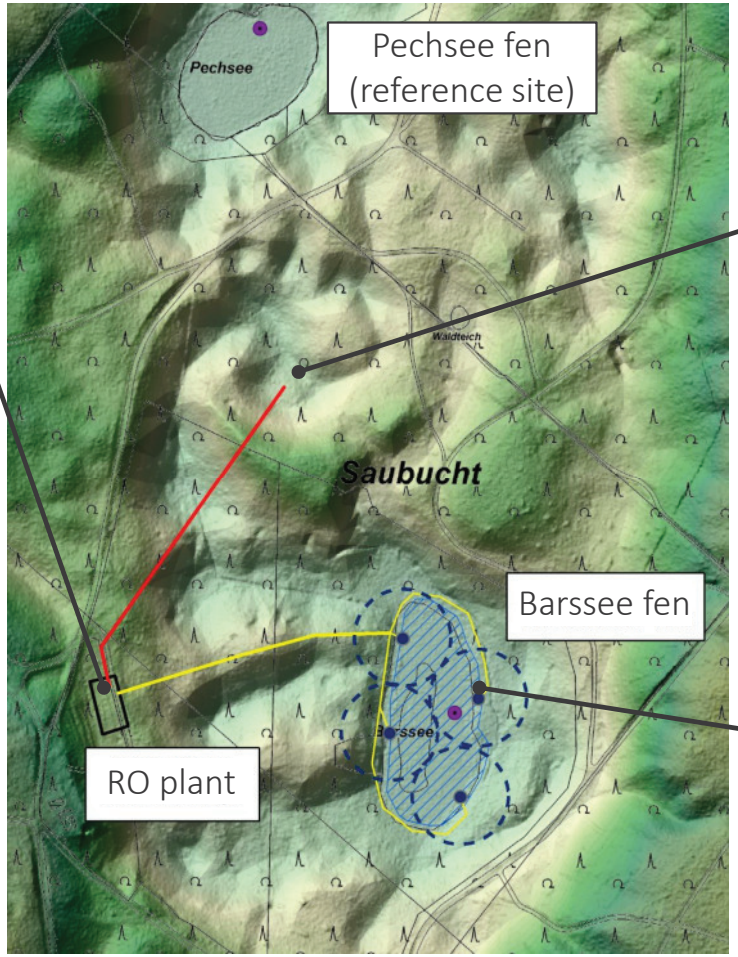
Source: Sammlung Uwe Gerber (forst-grunewald.de)

1919

2020

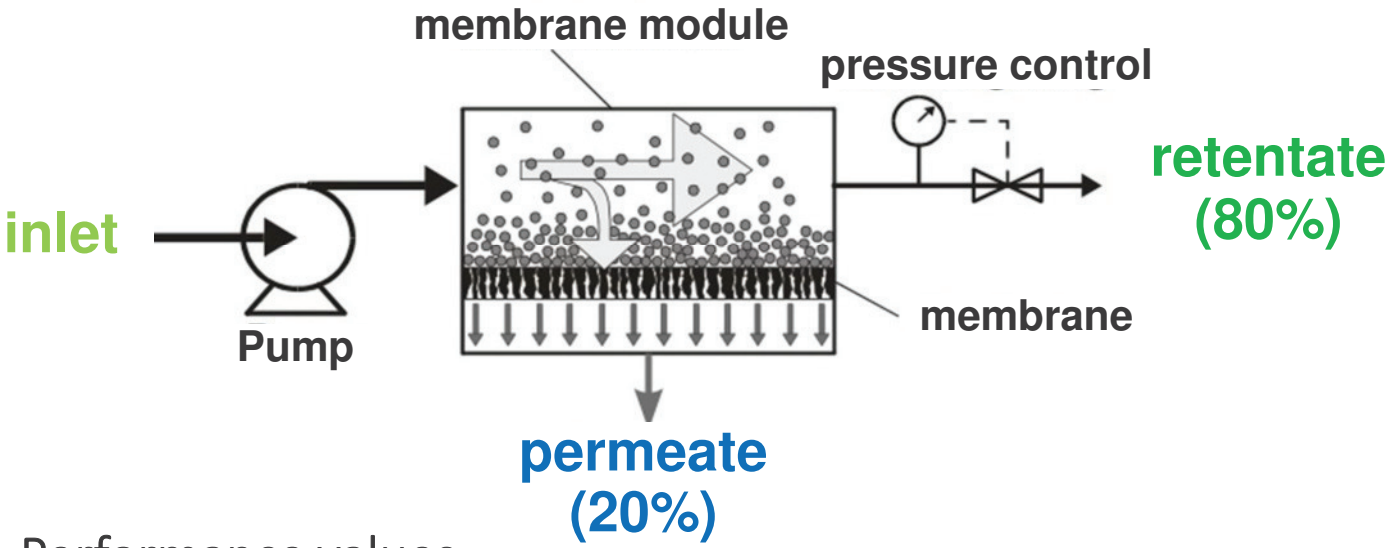
Habitat type „Transition mires and quaking bogs“

Configuration of irrigation system



Map source: Geoportal Berlin / ATKIS DGM

Reverse osmosis plant



Performance values:

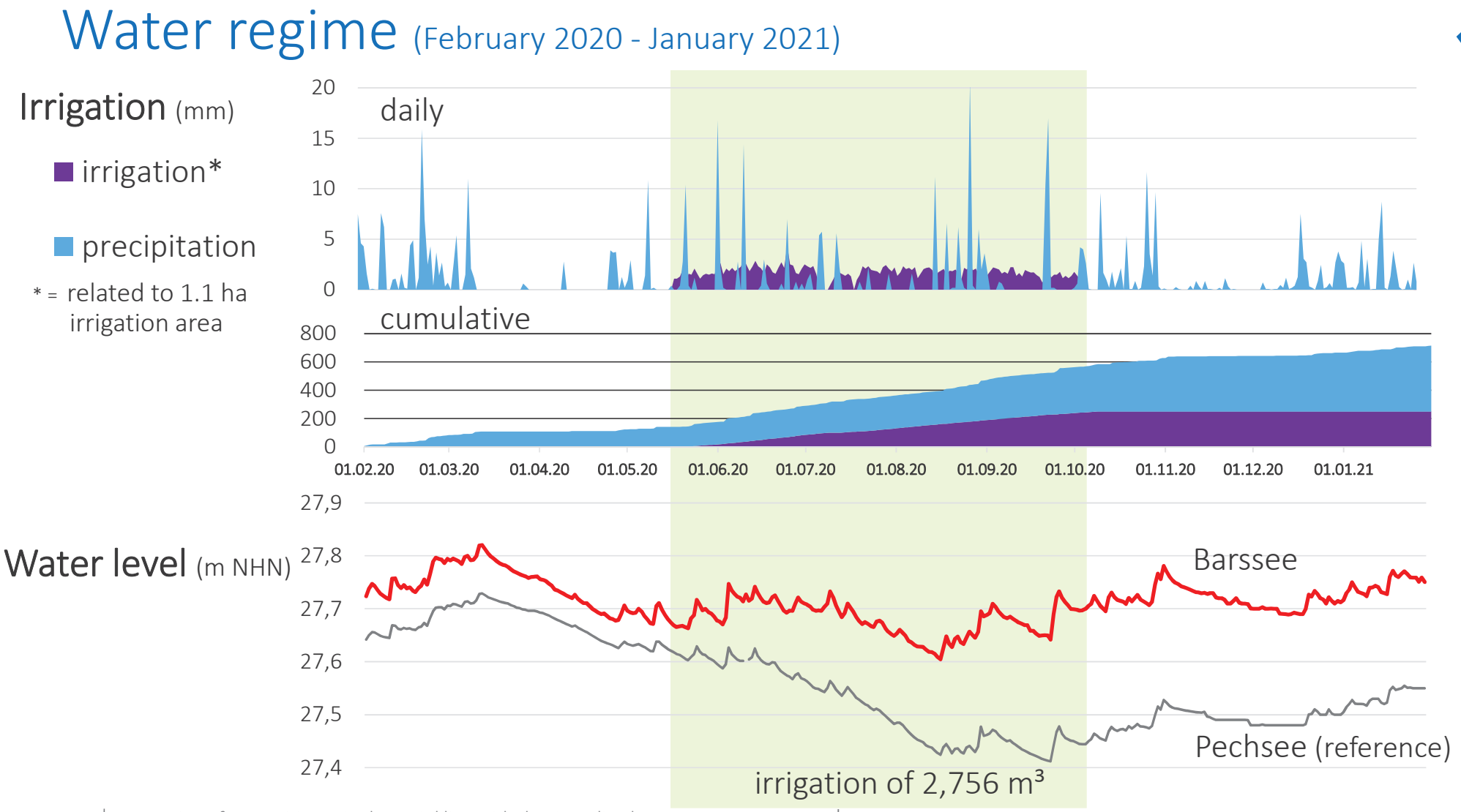
- Permeate production: 1 m³/h
- Operation pressure: 8.8 bar
- specific energy consumption*: 2.23 kWh/m³ (permeate)

* = without sprinkling (plus 0.45 kWh/m³)

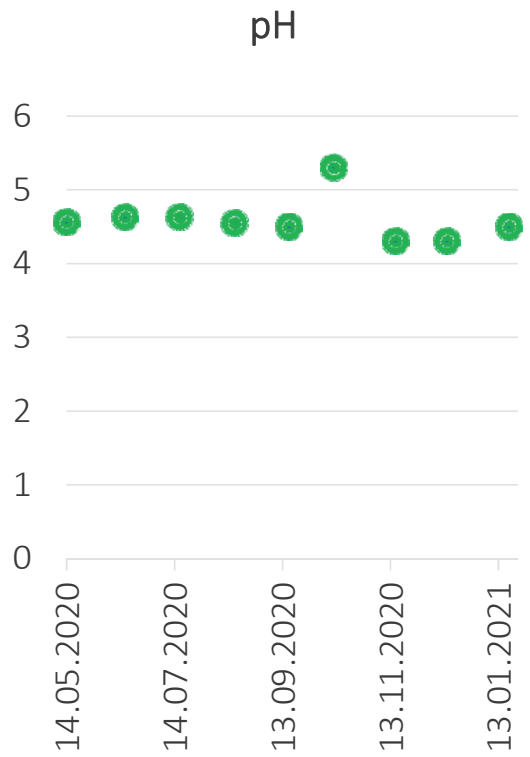
Water quality after treatment

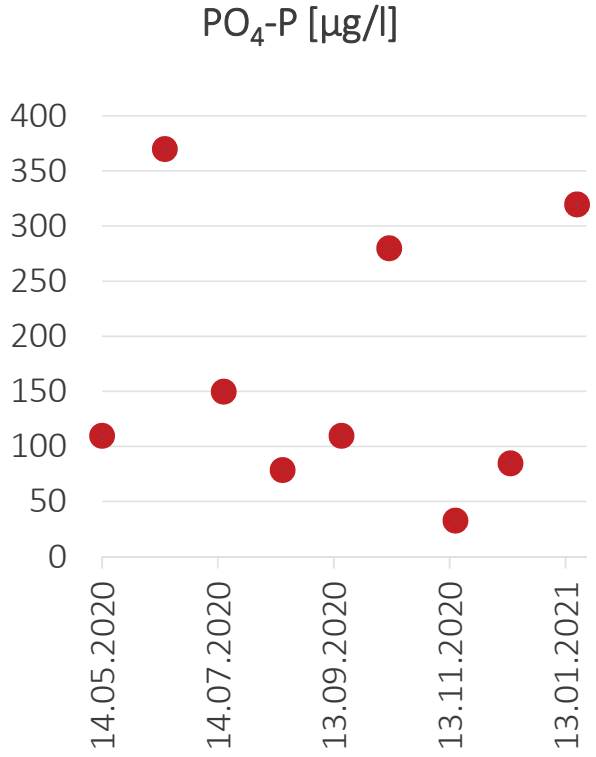
para-meter	unit	inlet	pore water Barssee / Pechsee	permeate (irrigation)	rainwater (UBA-Database Station Neuglobsow)
Na	mg/L	64	8.85 / 4.62	2.76	< 10
Mg	mg/L	10.7	0.38 / 0.63	< LoQ (0.1)	< 0.5
K	mg/L	4.5	0.39 / 3.54	< LoQ (0.3)	< 1
Ca	mg/L	131	2.21 / 3.83	< LoQ (0.4)	< 0.2
NH_4	mg/L	< LoQ (0.05)	< LoQ (0.05)	< LoQ (0.05)	< 1
Cl	mg/L	92.5	< LoQ (5)	< LoQ (5) (est.: 0.4-0.6)	< 1
SO_4	mg/L	130	< LoQ (6)	< LoQ (6) (est.: 0.6-0.9)	< 1
NO_3	mg/L	3.68	< LoQ (0.2)	0.67	< 2
PO_4-P	mg/L	0.034	0.11 / 0.11	< LoQ (0.01)	< 0.01
pH	-	7.5	4.56 / 5.01	5.76	5.6
e. conduc.	µS/cm	1013	49 / 57	15	30

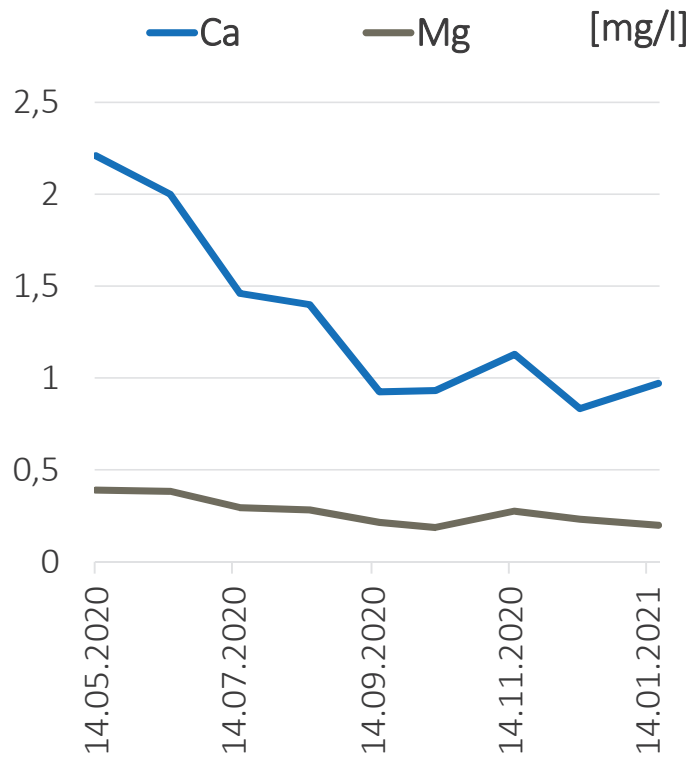
Water regime (February 2020 - January 2021)



Pore water quality at irrigated Barssee fen

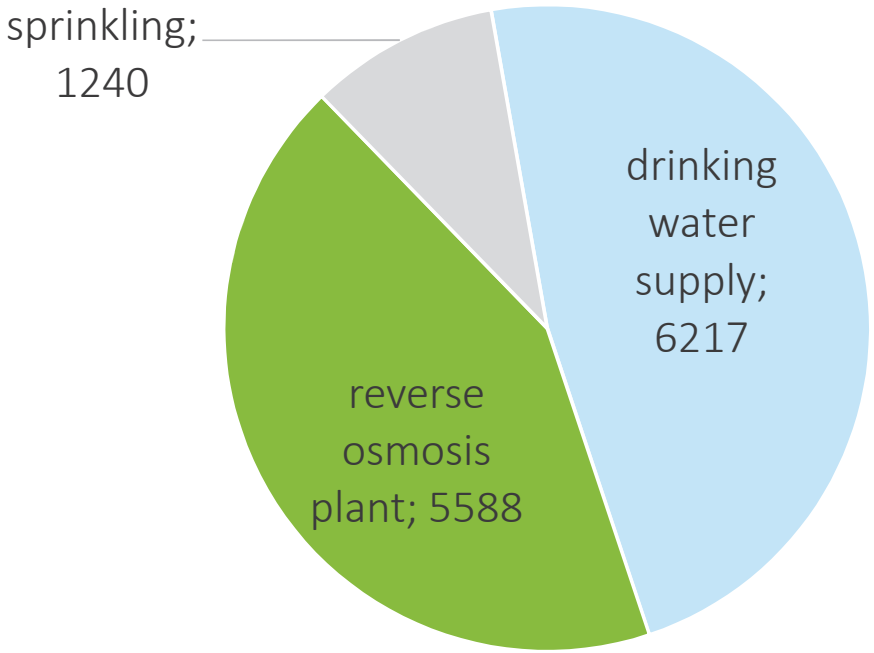




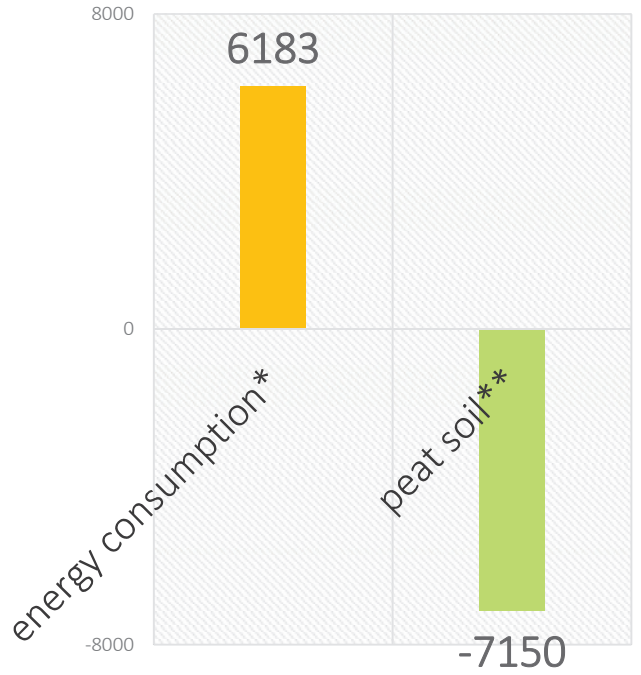


CO_2 balance

Energy consumption [kWh] in 2020



GHG Emissions [kg CO_2-eq/a]



* = energy mix BWB 2018 (474 g/ kWh)
** = GEST-modell (Couwenberg 2008),
change of water level class from 4+ to 5+ (Δ = 20 cm)

Ohne uns läuft nix.

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Thank you for your attention

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