

## Policy Brief # 2

### Introduction – Ways of nutrient removal by floating wetlands:

1. Plant roots in the water column directly absorb nutrients (e.g. phosphorus and nitrogen) and incorporate them into their tissues through biosynthesis.
2. Floating islands attenuate wave energy and water flow and thus enhance particle settling and nutrient burial.

### Examples of nutrient concentrations in different macrophyte species:

Latin name	English name	Nitrogen	Phosphorus
<i>Typha latifolia</i>	Broadleaf cattail	1.6 % dm	0.7 g/kg dm
<i>Schoenoplectus lacustris</i>	Lakeshore bulrush	1.3 % dm	0.5 g/kg dm
<i>Iris pseudacorus</i>	Yellow flag	2 % dm	0.6 g/kg dm
<i>Bolboschoenus maritimus</i>	Saltmarsh bulrush	1.4 % dm	0.5 g/kg dm
<i>Lythrum salicaria</i>	Purple loosestrife	1.8 % dm	1 g/kg dm
<i>Butomus umbellatus</i>	Flowering rush	3 % dm	0.9 g/kg dm
<i>Carex acutiformis</i>	Lesser pond-sedge	1.9 % dm	0.8 g/kg dm
<i>Juncus effusus</i>	Common rush	1.3 % dm	0.8 g/kg dm



## Recommendations – How to maximize nutrient removal efficiency:

- Timing of plant harvest is crucial. Perennial macrophytes move their nutrients into the roots when senescence starts in autumn. To be most effective, harvest should be in (late) summer but still in agreement with local nature protection regulations.
- Remember that not only the nutrient concentrations in the different plant species are important, but also the biomass growth and thus nutrient stocks. For example biomass development of *Typha* is larger than *Butomus* .
- Consider site-specific conditions: Do you want to enhance particle settling and thus nutrient burial? Then use macrophytes with a dense and large rhizome network like *Phragmites*. If you have problems with oxygen shortages use plants with short roots to allow free water flow.
- Try to combine floating macrophytes with other nutrient removal options, e.g. attach longlines for mussel or macro-algae cultivation to your island.
- In general remember to consider additional ecosystem services, e.g. enhancing biodiversity by integrating endangered species and creating habitats



## More information

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