

Viera Straskrabova – Biodiversity in aquatic ecosystems – what are the drivers and pressures.

A summary of aquatic ecosystem types, main differences with terrestrial ecosystems, main threats and main services and human demands is given. Furthermore the EU Water Framework Directive (WFD) is described

Two types are lotic and lentic systems. Aquatic systems are characterized by smaller heterogeneity, less oxygen, light and more water if compared to terrestrial ecosystems. Respiration often surpasses production, which means there is nutrient input from the terrestrial systems, indicating they are highly interlinked. Main pressures and drivers are either of aquatic or terrestrial origin and can be acting direct on species (overexploitation, invasive species, habitat change) or indirect on habitat (eutrophication, acidification, toxic waste, climate, land use change). Land use change relates to all other indirect pressures. After halting the input of nutrients eutrophication is not directly stopped due to internal loading of phosphorous and resident time of the water. Human demands on the aquatic ecosystems are water quantity (e.g. for irrigation), transport & energy, drinking water, food production and recreation, the demands result in conflicting use of the water.

The WFD states sustainable water use and the protection of waters and terrestrial ecosystems depending on them. It is focusing on combining human demands with sustainable use. The word biodiversity cannot be found in the WFD, however biodiversity (ecosystem quality) is used to assess the quality of water. The general consensus is that opportunities to conserve biodiversity are missed by leaving biodiversity conservation out when defining the WFD but also the Habitat directive.

Questions are posed on how aquatic biodiversity influences resilience to threats and if we know more of the effects of toxic compounds (PPCP) on both aquatic and terrestrial systems. In the discussion we get the insight that aquatic ecosystems are complex and adaptive. It is difficult to find species that are indicators for biodiversity or to draw general conclusions about how biodiversity influences aquatic ecosystem functioning. We still lack information on many processes in aquatic ecosystems, but it is obvious to most people that we should act already and conserve both species and habitat quality in aquatic systems.

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