

Economic benefits of reducing agricultural N losses to coastal waters

Mikael Skou Andersen

Aarhus University, Department of Environmental Science

We estimate economic benefits for seaside recreation and waterfront property when reducing nitrogen leaching to coastal water bodies. We apply impact pathway and benefit transfer methodology, linking total nitrogen concentration to water clarity (Secchi-depth). Ten catchments are analyzed comparing results for 2010 to a policy scenario that complies with the EU Water Framework Directive. The scenario reduces leaching with 5200 ton N, downstream discharges to estuaries by 35% and provide significant Secchi-depth improvements. Our integrated assessment predicts an annual economic benefit for local residents of €35 million, and co-benefits of up to €57 million. Benefits are catchment-specific and differ for downstream discharges from €1 to €32 per kg N, while for upstream discharge losses they range up to €10 per kg N. When expressed per unit of farmland the policy scenario displays economic benefits spanning €8–176/ha. The span reflects the different physical, biological and human circumstances of each catchment.