

A Swedish CBA on acidification abatement the CAFE Baseline scenario

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Benefits: Biodiversity

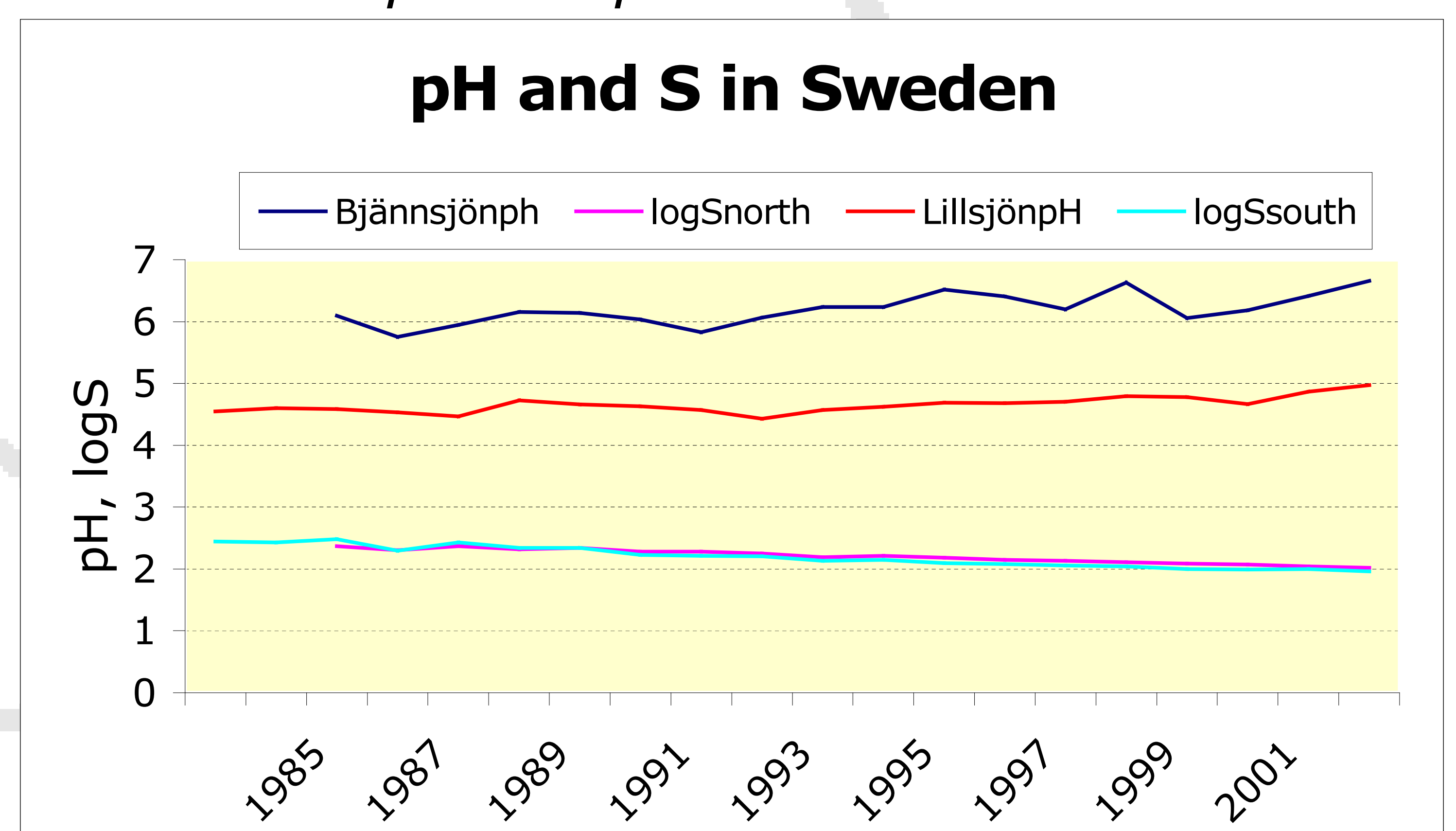
An important effect of acidification is the negative impact on ecosystems in general and the loss of aquatic biodiversity in particular. This has led to a great interest in valuing the impact of acidification on biodiversity as well as their recovery with the main objective of developing instruments to reduce the impacts.

Since acid neutralising capacity (ANC) depends on the dissolved organic carbon (DOC) content in water, and since the related data is not available, this study emphasises the relation pH and aquatic biodiversity. The figure to the right shows the relations between pH levels and acidity in the North and South regions of Sweden.

A regression analysis was carried out to give an idea of the impact of pollution on pH, despite a more complicated relationship. As shown in the table to the right the estimated coefficients were significant but varied depending on region. In the case of northern Sweden, a 1 % increase in sulphur deposition would lead to a 1.38 % decrease in pH. In the case of southern Sweden, a 1 % decrease in sulphur deposition would lead to a 0.5 % increase.

Based on benefits transferred from studies related to MWTP to increase fish stock, Total benefits of increased aquatic biodiversity in Sweden are shown in the table to the right:

Correlation pH and pS



Regression estimates

	North	South
Intercept	9.23 (8.79)	5.76 (27.93)
S deposition	-1.38 (2.86)	-0.50 (5.38)
n	49	78

Benefits of biodiversity due to acidification reduction in Sweden (€₂₀₀₀ prices)

	pH limit 6.58				pH limit 7.93			
	0.4	1.6	2.8	10.5	1.4	5.5	9.5	37.0
MWTP	0.4	1.6	2.8	10.5	1.4	5.5	9.5	37.0
Total benefits* (mio)	0.4	1.6	2.8	10.6	1.4	5.7	9.9	38.2
Total benefits** (mio)	1.6	6.4	11.2	43.1	5.8	22.3	38.9	150.2

*) if calculated on 14% of Swedish population
**) if calculated on 55% of Swedish population