

ECASA indicator

Name	Environmental damage costs per unit
DPSIR class	Impact
ECASA sub-group	Socio-economy (economic efficiency)
ECASA code	DAMAGE
Proposed by participant	2- CEMARE, University of Portsmouth, United Kingdom
Definition, computation, Data sources and relevant studies	<p>The following studies use one or other of the valuation techniques mentioned below, and provide estimates of the damage costs of eutrophication from aquaculture:</p> <p>Folke, C., Kautsky, N. and Troell, M. 1994. The costs of eutrophication from salmon farming: implications for policy. <i>Journal of Environmental Management</i>. 40: 173-182</p> <p>Smearman, S., D'Souza, G. and Norton, V. 1997. External costs of aquaculture production in West Virginia. <i>Environmental and Resource Economics</i> 10: 167-175</p> <p>The following study estimates the costs of eutrophication in the Baltic from all sources, and could possibly be used as the basis for calculating the externalities of nutrient release from aquaculture :</p> <p>Gren, I-M., Turner, K. and Wulff, F. 2001. <i>Managing a Sea: the Ecological Economics of the Baltic</i>. Earthscan.</p>
Summary, scientific meaning, implementation	<p>Very great uncertainty attaches to the economic costs arising from the environmental impact of aquaculture, and this is further complicated by the fact that such costs are highly context-specific (i.e. the harm caused by aquaculture pollution will vary widely according to circumstances – farm location, feeding regime, etc.). Regarding the eutrophication effects of cage aquaculture, the small number of economic studies published to date testifies to the serious methodological challenges of reliably estimating the environmental damage costs. For computational purposes, a basic way forward would be to estimate (a) the release of N and P per unit of farmed production, and (b) impute an economic value to these figures using methodologies based on either (i) abatement expenditure, (ii) dose-response, (iii) contingent valuation, or (iv) a 'benefit transfer' approach</p>
Range of validity	
Species concerned (fishes/molluscs)	
Related type of aquaculture	
Relevant environments for this indicator	
Geographic scale	
Direct relevance to objectives	
Clarity in design.	
Realistic collection or development costs	
High quality and reliability	
Appropriate spatial and temporal scale	
Obvious significance	