

ECASA indicator

<b>Name</b>	<b>Winter nutrients concentrations (DIN &amp; DIP)</b>												
<b>DPSIR class</b>	Impact												
<b>ECASA sub-group</b>	Water quality												
<b>ECASA code</b>	WINTERNUT												
<b>Proposed by participant</b>	16 – University of Gothenburg, Sweden												
<b>Definition, computation,</b>	Winter dissolved inorganic nitrogen and phosphorus should remain below elevated levels, defined as concentrations >50% above salinity related and/or region-specific natural background concentrations.												
<b>Data required</b>	Nutrient concentrations (DIN and DIP) time series for both stations (within the study site and control outside the study site). Long time series (over a several years) are preferred but shorter time series would be acceptable.												
<b>Summary, scientific meaning, implementation</b>	The availability of nutrients (and the appropriate ratios of different nutrient species, such as nitrogen and phosphorus) is one of the key environmental variables controlling the growth of phytoplankton and other primary producers in coastal waters. In temperate regions, coastal waters nutrient concentrations are highest in winter, when agricultural run-offs are highest due to increased precipitation. In addition, growth rates of algae and other plants are slow due to poorer availability of light and lower water temperatures. Monitoring studies done in the UK indicate that nutrients tend to accumulate in coastal waters during the winter months (November to February). The mean DIN and DIP winter concentrations can be compared with mean winter (January/February) nutrient concentrations in the surrounding control seawater. Elevated concentrations will be judged to be those that exceed the background concentration by 50%.												
<b>Range of validity</b>	<table border="1"> <thead> <tr> <th>Range of validity : from 0 to 100%</th> <th>Background vs farms</th> </tr> </thead> <tbody> <tr> <td>No impact</td> <td>0%</td> </tr> <tr> <td>Low impact</td> <td>1 to 4%</td> </tr> <tr> <td>Moderate impact</td> <td>5 to 19%</td> </tr> <tr> <td>High impact</td> <td>20 to 49%</td> </tr> <tr> <td>Unacceptable impact</td> <td>&gt; 50%</td> </tr> </tbody> </table>	Range of validity : from 0 to 100%	Background vs farms	No impact	0%	Low impact	1 to 4%	Moderate impact	5 to 19%	High impact	20 to 49%	Unacceptable impact	> 50%
Range of validity : from 0 to 100%	Background vs farms												
No impact	0%												
Low impact	1 to 4%												
Moderate impact	5 to 19%												
High impact	20 to 49%												
Unacceptable impact	> 50%												
<b>Species concerned (fishes/molluscs)</b>	fishes												
<b>Related type of aquaculture</b>	Cages aquaculture, longlines, open sea aquaculture (limited)												
<b>Relevant environments for this indicator</b>	Open sea (limited) Sheltered areas (bays, fjord, estuaries)												
<b>Geographic scale</b>	Regional and local												
<b>Direct relevance to objectives</b>	A												
<b>Clarity in design.</b>	A												
<b>Realistic collection or development costs</b>	B												
<b>High quality and reliability</b>	A												
<b>Appropriate spatial and temporal scale</b>	B												
<b>Obvious significance</b>	A												

## ECASA indicator

**advantages**  
**disadvantages**  
**references**

Painting, S. (2004). Assessing the suitability of OSPAR EcoQOs vs. ICES criteria.  
Report to DEFRA.  
OSPAR Comprehensive procedure.

**State of validation**  
**Recommendations**

The proposed indicator could be tested in Loch Creran (Scotland) by measuring its present value, in the presence of a fish farm, and comparing this with historic data taken during the 1970s, before the farm was in place.