

ECASA indicator

Name	Particulate organic Carbon in sea water
DPSIR class	Impact
ECASA sub-group	Water quality
ECASA code	POCWC
Proposed by participant	16 – University of Gothenburg, Sweden
Definition, computation,	Direct measurements made from CHN analysers, on GF/F filters filters COP = Total particulate carbon – particulate carbon after digestion
Data required	1- Volume of sea water filtered 2-Total Particulate Carbon retained on GF/F filters 3-Particulate carbon after digestion on GF/F filters
Summary, scientific meaning, implementation	The Particulate Organic Carbon relates to the organic matter contained into the seston. It includes both living and non living materials. Associated with chlorophyll a measurements, it reflexes the different food origins for the filter feeders. POC is also related to the finfish farms effluents, as it is a measure of the organic matter wasted into the waters. However, it may be advocated that POC includes the refractory organic matter, considered as poorly incorporated into trophic webs
Range of validity	
Species concerned (fishes/molluscs)	all
Related type of aquaculture	-Open sea aquaculture -Cage aquaculture -Longlines
Relevant environments for this indicator	Open sea Coastal water bodies
Geographic scale	Local and regional
Direct relevance to objectives	A- This Parameter is highly relevant both for investigations before the establishment of a farm (WP3) and also as an indicator of the effect of the farm on the surroundings (WP2).
Clarity in design.	A- The parameter is easy to evaluate, and can be used for establishment of trends. Analyses of the quality of the background POC (off-season) might be important, if POC is used as an indicator for food availability.
Realistic collection or development costs	B- This is a well defined parameter with a well developed analysing method. It is rather expensive though, about twice the cost of nutrient analyses.
High quality and reliability	A- Can be measured and modelled before the establishment of a farm and monitored to detect trends
Appropriate spatial and temporal scale	B- The amount of POC varies with the growth season with lower values off season and higher values during the productive part of the year. Higher amounts of POC may occur e.g. in the vicinity of freshwater discharge carrying organic matter to the sea. Enclosed areas with no freshwater input may on the other hand work as a sink of POC. The choice of sampling area of this parameter is therefore important
Obvious significance	A-The significance of this indicator is obvious for both farmers and scientists. POC includes both living and dead organic matter in the water column, and can be used as a measure of food availability for crustaceans

ECASA indicator

advantages	POC measurements are performed in monitoring programmes in European coastal waters, and in oceanographic and EIA studies
disadvantages	
references	Bell S, Morse S (2003) Measuring sustainability: Learning from doing., Vol. Earthscan, London Smith J, Shackley SE (2004) Effects of a commercial mussel <i>Mytilus edulis</i> lay on a sublittoral, soft sediment benthic community. Mar Ecol Prog Ser 282:185-191
State of validation	POC is widely used to assess the particulate organic matter in the water column, in marine and brackish waters environments
Recommendations	
Why using this indicator	
How to use it (sampling...)	