

ECASA indicator

Name	DNA microsatellites
DPSIR class	Impact
ECASA sub-group	Genetic
ECASA code	DNAMICROSAT
Proposed by participant	4 – National institute of biology, Slovenia
Definition, computation,	<p>Calculation:</p> <ol style="list-style-type: none"> 1.number and frequency of alleles in broodstock samples 2.number and frequency of alleles in native population samples 3.calculation level of polymorphism in the samples (heterozygosity), Hardy-Weinberg equilibrium, 4.effective population size and demographic fluctuations 5.hybrid and kinship identification 6. stock structure identification
Data required	<ol style="list-style-type: none"> 1.genotyping of brood 2.genotyping of samples from native populations
Summary, scientific meaning, implementation	<p>Microsatellites are codominant markers, very abundant, evenly distributed through genome, with small locus size and high polymorphism. They are extensively used in fisheries research including studies of genome mapping, parentage, kinship and stock structure. They have broad use in identifying the degree of divergence within and among brood and native populations, hybrid identification, paternity identification, analysis of genetic diversity, stock identification etc.</p>
Range of validity	
Species concerned (fishes/molluscs)	Fishes and molluscs
Related type of aquaculture	<ul style="list-style-type: none"> -Open sea aquaculture -Cage aquaculture -Longlines -Intertidal, extensive aquaculture
Relevant environments for this indicator	Open sea Sheltered areas (bays, fjord, estuaries)
Geographic scale	Regional scale
Direct relevance to objectives	
Clarity in design.	
Realistic collection or development costs	
High quality and reliability	
Appropriate spatial and temporal scale	
Obvious significance	

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advantages
disadvantages
references

- O'Connell, M., and Wright, J.M., 1997. Microsatellite DNA in fishes. *Rev. Fish. Biol. Fish.* 7, 331-363.
- Carvalho, G.R., Hauser, L., 1998. Advances in the molecular analysis of fish population structure. *Ital. J. Zool.*, 65, suppl. 21-33.
- Estoup, A., and Angers, B., 1998. Microsatellites and minisatellites for Molecular Ecology: Theoretical and Empirical Considerations. In: *Advances in Molecular Ecology*, Carvalho, G.R. (ed.), IOS Press, 55-86.
- Balloux, F., and Lugon-Moulin, N., 2002. The estimation of population differentiation with microsatellite markers. *Molecular Ecology*, 11:155-165.

State of validation
recommendations