

Along with inadequate human and financial resources, a key obstacle to achieve the Aichi Biodiversity Targets is the lack of consensus about which biodiversity data to measure. Biodiversity has many dimensions and can be observed at several scales. At a given spot, thousands of species might occur, hard to be quantitatively collected or even identified. Their genetic diversity poses an additional challenge as their function in the ecosystem and the ecosystem services provided.

How can Earth Observations, both in situ and remote sensing, help to understand the process of biodiversity change and which biodiversity is really essential for human activities?

## → What to measure? - The dimensions of biodiversity



**GEO BON - Group on Earth Observation Biodiversity Observation Network**



**GROUP ON  
EARTH OBSERVATIONS**

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## Essential Biodiversity Variables (EBVs)

*Getting most for your money.*

## ► The inadequacy of on-going biodiversity monitoring

Current biodiversity monitoring is spatially, topically and taxonomically highly inadequate. Some of the places with highest biodiversity and where the fastest changes are occurring have no monitoring systems in place. In other places, the biodiversity monitoring systems only cover one dimension of biodiversity, and fail to capture key elements essential for the delivery of ecosystems services.

Finally, repeated observations in representative spatial sampling schemes are missing in many regions of the world.

Plankton in the Atlantic Ocean, 2011  
Credits: ESA

## ► Getting most for your money

**GEO BON** is developing a framework of **Essential Biodiversity Variables**, which are a minimum set of measurements to capture major dimensions of biodiversity change, complementary to one another and to other environmental change observation initiatives.

**Essential Biodiversity Variables** cover the different dimensions of biodiversity change. They are temporally sensitive by having the ability to detect change. Most important, they are relevant, scalable, feasible and biological.

**EBVs** also facilitate data integration by providing an intermediate abstraction layer between primary observations and indicators.

*How and why is biodiversity changing?*

What are the consequences for human well-being?

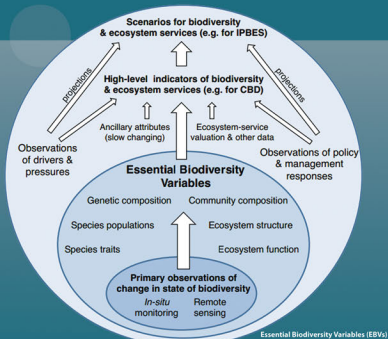
*The questions EBVs help to answer*

What is the future risk of harmful biodiversity change?

*Are responses being taken effective?*

## ► Development of EBVs

**GEO BON** defines an **EBV** as a measurement required for study, reporting, and management of biodiversity change. Hundreds of variables potentially fit this definition. We developed and tested a process, still ongoing, to identify the most essential.



Essential Biodiversity Variables (EBVs)

