

How eDNA outperforms other methods

Comparison of the effectiveness, safety, and feasibility of eDNA methods, other noninvasive methods (such as underwater visual survey line transects), and traditional sampling methods involving capture of organisms (such as bottom trawls or longlines), based on the author's assessment. eDNA performs other methods for most attributes, except those that are not discoverable through genetic analysis. The scores reflect current rankings; rankings for eDNA are expected to improve as the method develops. See supplementary materials.

Attribute	eDNA	Other noninvasive	Established capture method
Effectiveness			
Detect species presence	● ● ●	● ●	● ●
Assess species range distribution	● ● ●	● ●	● ●
Assess species trends in abundance	● ●	● ●	● ●
Estimate species abundance	●	● ●	● ●
Assess associated ecological community (biodiversity)	● ● ●	●	● ●
Determine individual attributes (size, age, sex, diet composition)	●	● ●	● ● ●
Assess biological/ecological attributes over time (tag and live release of individuals)	●	● ●	● ● ●
Safety			
Prevent injury or mortality of individuals sampled	● ● ●	● ● ●	●
Prevent injury or mortality of nontarget species	● ● ●	● ● ●	●
Prevent damage to important habitat	● ● ●	● ● ●	●
Feasibility			
Degree of expertise (taxonomic) needed to conduct sampling	● ● ●	●	●
Labor and time required to sample	● ● ●	●	●
Expense of sampling platform and its operation	● ● ●	● ●	●
Cost of sample processing	● ●	● ●	●

● Least ● Moderate ● Best