



# Analysis of biodiversity with environmental DNA

Freshwater and marine species



**Martin Hesselsøe**  
 Market Director, ph.d.  
 Nature and Environmental  
 Biotechnology  
 T: +45 4097 9503  
 E: MHES@niras.dk

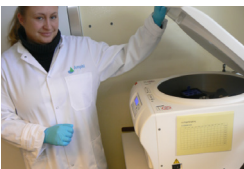
**For more information**  
[www.niras.dk/eDNA](http://www.niras.dk/eDNA)  
[www.niras.com/eDNA](http://www.niras.com/eDNA)

**NIRAS A/S**  
 Sortemosevej 19  
 3450 Allerød  
 Denmark

Environmental DNA (eDNA) is increasingly used for mapping of biodiversity in aquatic environments. NIRAS A/S offers eDNA analysis targeting a wide range of species living in freshwater and marine ecosystems.

The species in focus are fishes, insects or amphibians, which are either endangered, protected or commercially interesting.

Specificity for the eDNA detection systems has been tested on tissue extract from target species, and closely related non-target species to confirm specificity of the detection system. Species-specific detection systems was developed and tested in cooperation with the University of Copenhagen with support from Innovation Fund Denmark. Monitoring diversity with eDNA does not require technical or academic resources in the field. The new approach with DNA detection from a water sample may provide useful supplement or alternative for authorities, land owners and commercial industries.



## EXAMPLES OF TARGET SPECIES

### Amphibians

Great crested newt *Triturus cristatus*  
 Moor frog *Rana arvalis*  
 Agile frog *Rana dalmatina*  
 European tree frog *Hyla aborea*  
 Common spadefoot *Pelobates fuscus*  
 Natterjack *Bufo calamita*  
 European green toad *Bufo viridis*

### Invertebrates

*Dytiscus latissimus*  
*Graphoderus bilineatus*

### Crayfish

Galician crayfish *Astacus leptodactylus*  
 Signal crayfish *Pacifastacus leniusculus*  
 European crayfish *Astacus astacus*

### Fish

Crucian carp *Carassius carassius*  
 European weatherfish *Misgurnus fossilis*  
 Spined loach *Cobitis taenia*  
 Pond loach *Misgurnus anguillicaudatus*  
 European eel *Anguilla anguilla*  
 Northern Pike *Esox lucius*  
 European Perch *Perca fluviatilis*

### Marine species

European eel *Anguilla anguilla*  
 Atlantic mackerel *Scomber scombrus*  
 Atlantic cod *Gadus morhua*  
 Atlantic herring *Clupea harengus*  
 European plaice *Pleuronectes platessa*  
 European flounder *Platichthys flesus*