

eDNA Working Group: Rationale and agenda for 9th May meeting at The Food and Environment Research Agency, Sand Hutton, York, YO41 1LZ

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Rationale & Objectives for the workshop

Within the Environment Agency, we have a small programme of environmental DNA research and development. This is currently focussed on diatoms and invertebrates as a possible alternative to our current methods of biological identification and analysis. We are receiving an increased number of requests for further work or collaboration in what is without doubt a rapidly developing area, for example, invasive and protected species and fish. In response to this growing interest in the use of eDNA for environmental monitoring and in light of significant research council investment in the technology, we feel it would be useful to get people together from across the Defra network and more broadly to:

- a) Develop a shared understanding of eDNA work recently completed and currently underway,
- b) Consider how eDNA could be used in the future and establish priorities for investment,
- c) Elaborate on where the technical challenges may lie,
- d) Explore opportunities for collaborative working, and
- e) Agree how to position research requirements more effectively in the future.

eDNA Working Group Agenda

Please come prepared to participate in the group discussion. We would like to use this opportunity to get as much information as possible on work underway, priority areas for development, the technical challenges as you perceive them and any insights on potential funding opportunities.

Time	Item
10.00	Welcome to Fera (Mike Wray) What are we here to do? (Doug Wilson)
10.15	Projects under way. Examples... <ul style="list-style-type: none">- Classifying water bodies using diatom DNA barcodes (Dr Martyn Kelly - Bowburn)- Freshwater ecosystem biomonitoring (Dr Simon Creer – Bangor University)- Detection of non-native freshwater fishes (Dr Gordon Copp - CEFAS)- Detection of Great Crested Newt using eDNA (Jeremy Biggs – Freshwater Habitats Trust)- eDNA applied to environmental samples (Alice Valentini – Spygen)
11.15	Coffee
11.30	Group discussion to share knowledge and establish areas of interest within: <ol style="list-style-type: none">1. DNA bar-coding of communities (e.g. diatoms, invertebrates, fish, phytoplankton using high throughput sequencing)2. Detection of single/multiple species (e.g. invasive / protected area species, fish using quantitative PCR probes)3. Other applications e.g. pollution source tracking Questions; <ul style="list-style-type: none">- What work has been done / is underway?

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Time	Item
	<ul style="list-style-type: none"> - How do you want to use eDNA techniques and for what purpose? - Where do the technical challenges lie? - Are you aware of any funding opportunities?
12.10	Group discussion to share knowledge and establish areas of interest (rotate)
12.45	Lunch (live link to 'Omics Miniaturisation: Taking 'Omics into the Field: From handheld devices to autonomous monitoring stations)
13.30	Group discussion to share knowledge and establish areas of interest (rotate)
14.10	Plenary: Group discussion feedback
14.40	Do we need a framework to ensure best practice? (Neil Boonham/Martyn Kelly) Questions; <ul style="list-style-type: none"> - Is it important to have standardisation? - Should we develop minimum criteria or best practice guides? - How should we approach validation and determine how much is required?
15.30	Next steps for the eDNA Working Group (Doug Wilson)
16.00	Tour of the laboratories (optional)

eDNA Working Group : Discussion Group Facilitators & Rapporteurs

Topic	Facilitator	Rapporteur
DNA bar-coding of communities (e.g. diatoms, invertebrates, fish using high throughput sequencing)	Mel Sapp Fera	Rosie Blackman Environment Agency
Detection of single/multiple species (e.g. invasive / protected area species, fish using quantitative PCR probes)	Graeme Peirson Environment Agency	Katie Sumner Environment Agency
Other applications e.g. pollution source tracking	Ian Cox Fera	Sara Grinnell Fera
Do we need a framework to ensure best practice?	Martyn Kelly / Neil Boonham Bowburn Consultancy / Fera	Louise Byass Fera