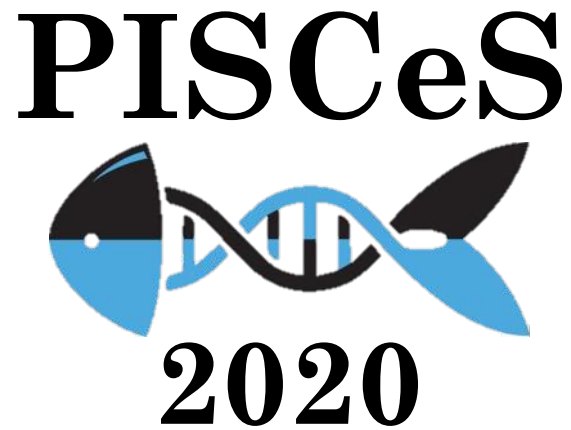


Pathway to Increase Standards and Competency of eDNA Surveys



SAVE THE DATE

MAY 28-29

**UNIVERSITY OF GUELPH
GUELPH, ON, CANADA**

MAY 27 – Introduction to environmental DNA workshop

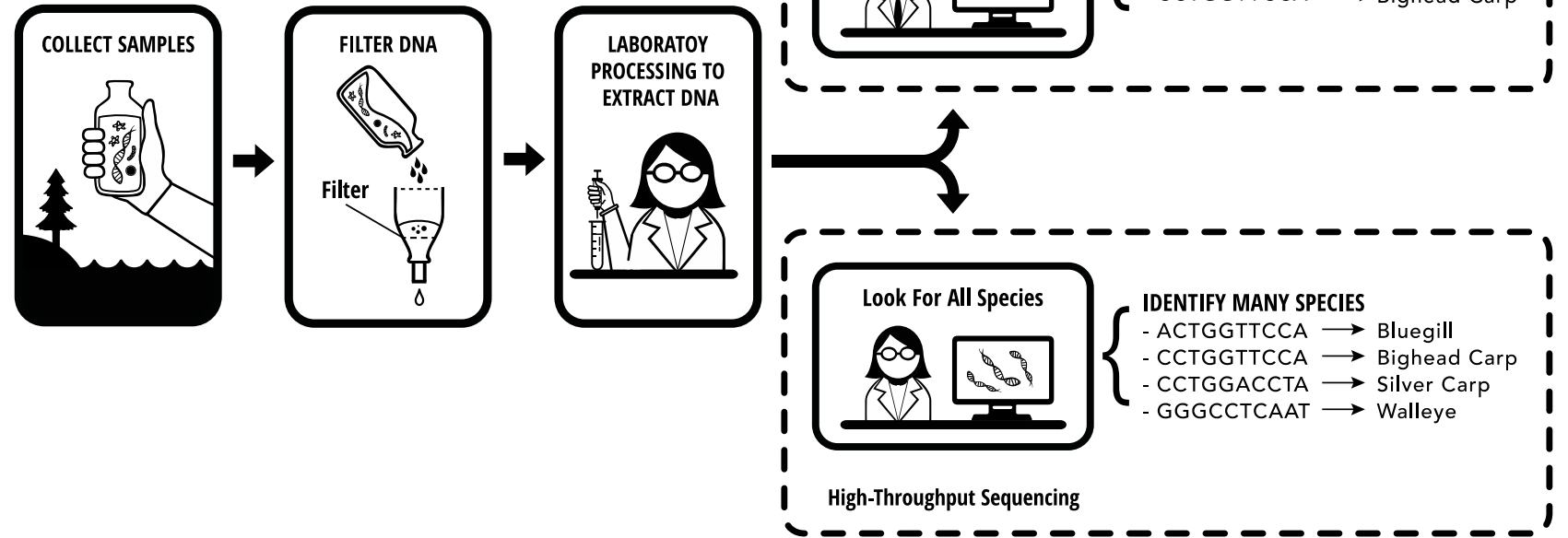
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Once the sample is collected, filtered, and the DNA is extracted, the DNA can be screened using two different approaches

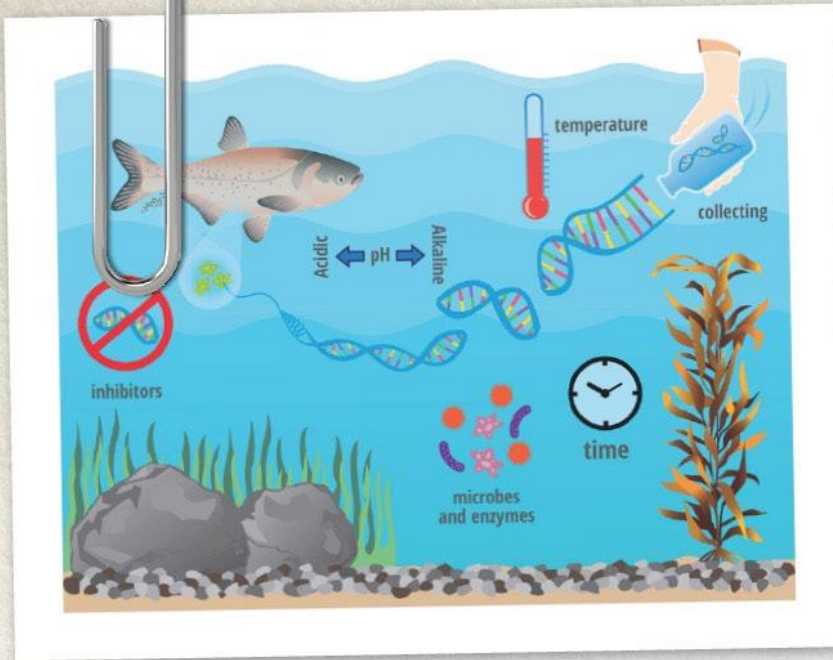


Active surveillance: using technology and molecular techniques to evaluate if a species is present (e.g. PCR, qPCR, ddPCR)

Passive surveillance: using technology and molecular techniques to evaluate the presence and identity of many species (High-Throughput Sequencing (HTS))

PULSE ON SCIENCE: RESEARCH BRIEFS

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Many factors can influence eDNA degradation in the environment.

PROJECT NAME:

Uses and Limitations of Environmental DNA (eDNA) in Fisheries Management

Project Leader: Amy Welsh,
West Virginia University

Project Team: Christopher Jerde¹, Christopher Wilson², Margaret Docker³, Brian Locke⁴

¹University of California-Santa Barbara, ^{2,4}Ontario Ministry of Natural Resources and Forestry, ³University of Manitoba

THE SCIENCE TRANSFER FILES

OVERVIEW

Environmental DNA Knowledge Centre

<https://edna-dev.epri.com>

Click on a photo to explore different areas of environmental DNA

Overview Applications Workflow

Uncertainties and Limitations Protocols and Methods Webinars and Lectures

SOLAR POWER POWER PLANT WIND FARMS HYDROELECTRIC POWER LINES

eDNA and the Power Industry

Environmental DNA Publication Explorer

Click on the figure to explore an automated map, designed to show how many unique articles document a set of topics on environmental DNA research.

504 Relevant Publications 0 Publications This Year 107 Publications in Open Access

Search Titles:

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Search Range:

Biological Focus	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Amphibians	1	1	1	1	1	1	1	1	1	1	1
Fish	1	1	1	1	1	1	1	1	1	1	1
Invertebrates	1	1	1	1	1	1	1	1	1	1	1
Plants	1	1	1	1	1	1	1	1	1	1	1
Reptiles	1	1	1	1	1	1	1	1	1	1	1
Birds	1	1	1	1	1	1	1	1	1	1	1

Title	Lead Author	Journal	Publication Date	Cited by
"Light-unsensitized" detection of rare aquatic species using environmental DNA	Jerde, Christopher L.	Conservation Letters	2011-01-04	316
Monitoring endangered freshwater biodiversity using environmental DNA	THOMSEN, PHILIP FRANCIS	Molecular Ecology	2011-12-13	293
ITS as an environmental DNA barcode for fungi: an in silico approach reveals potential PCR biases	Belleman, Eva	BMC Microbiology	2010-07-12	287
Next generation sequencing technologies for environmental DNA research	SHOKRALLA, SHADI	Molecular Ecology	2012-04-10	274
Multiple marker parallel tag environmental DNA sequencing reveals a highly complex eukaryotic community in marine anoxic water	STOCK, THORSTEN	Molecular Ecology	2010-02-10	243
Environmental DNA	TABERLET, PIERRE	Molecular Ecology	2012-04-10	238
Environmental DNA - An emerging tool in conservation for monitoring past and present biodiversity	Thomsen, Philip Francis	Biological Conservation	2014-12-20	216
Detection of a Diverse Marine Fish Fauna Using Environmental DNA from Seawater Samples	Thomsen, Philip Francis	PLOS ONE	2012-08-29	207
Barcoded Primers Used in Multiplex Amplification Pyrosequencing Bias Amplification	Berry, David	Applied and Environmental Microbiology	2011-09-03	203
Environmental DNA for wildlife biology and biodiversity monitoring	Bahmann, Kristine	Trends in Ecology & Evolution	2014-05-10	193
Persistence of Environmental DNA in Freshwater Ecosystems	Dejean, Tony	PLOS ONE	2011-08-08	177
Estimation of Fish Biomass Using Environmental DNA	Takahara, Tomohiko	PLOS ONE	2012-04-27	165
Estimating occupancy and abundance of stream amphibians using environmental DNA from filtered water samples	Pilliod, David S.	Canadian Journal of Fisheries and Aquatic Sciences	2013-05-22	159
Improved detection of an alien invasive species through environmental DNA barcoding: the example of the American bullfrog (<i>Lithobates catesbeianus</i>)	Dejean, Tony	Journal of Applied Ecology	2012-10-03	152
REVIEW: The detection of aquatic animal species using environmental DNA - a review of eDNA as a survey tool in ecology	Rees, Helen C.	Journal of Applied Ecology	2014-05-20	140

Showing 1 to 504 of 504 entries

Environmental DNA

Open Access

Non-invasive molecular approaches
for conservation, ecological and environmental research

Environmental DNA

A new open access journal dedicated
to the study and use of environmental
DNA for basic and applied sciences



Now open for submissions!

Environmental DNA is fully double-blinded peer reviewed open access journal. The journal will publish papers that pertain to the analyses of environmental DNA (eDNA) (including ancient DNA, non-invasive sampling, diet analyses, metabarcoding, metagenomics, microbial ecology and pathogens) and address questions of both basic and applied relevance. Research areas (and non-exclusive examples of applications) of interest to *Environmental DNA* include but are not limited to:

- **Experimental eDNA work:** Testing the impact of physico-chemical factors (e.g. natural biogeochemistry and PCR pollutants) on eDNA, degradation, transport, shedding and detection rate, comparing detection and abundance estimate with conventional methods
- **Trophic and community ecology:** Ecosystem dynamics, functional diversity, predator-prey interactions (e.g. diet analysis), host-associated microbiota
- **Palaeo-environments:** Past species and community diversity and abundance measurements, inference in space and time
- **Biomonitoring, conservation biology:** Single- and multi-species detection, comprehensive biodiversity at different scales, abundance estimates, detection of rare, cryptic and endangered species, non-invasive sampling, management (e.g. fisheries), occurrence and detection estimates
- **Invasion biology:** Early species detection at low abundance, passive surveillance, impacts on ecosystems, vectors and pathways of dispersal
- **Environmental assessment:** Impacts of pollutants and other environmental disturbance on species and communities, microbial source tracking (fecal bacteria or pathogens)
- **Physical eDNA properties:** Uptake and transformation based on geochemistry, particles, organic chemistry or microbial community
- **Techniques and methods:** Engineering development, developing, testing and evaluating eDNA biotechnology and biostatistical approaches
- **Applications in citizen science and biodiversity education**

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A new open access journal dedicated
to the study and use of environmental
DNA for basic and applied sciences



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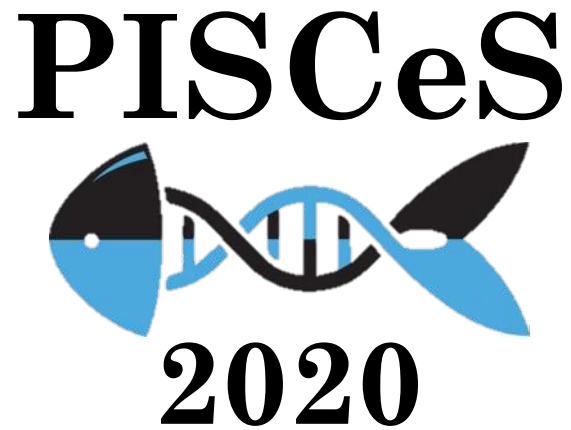
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