

# METAGENOMICS ANALYSIS



Current methods for surface water microbiological analyses are laborious and limited to few cultivable species. High-throughput sequencing with MinION™, a pocket size single molecule sequencer, holds great promises for quick, comprehensive on site analysis of environmental samples.

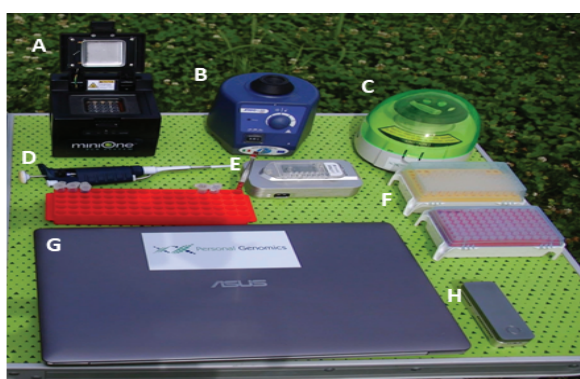
## TOOL OVERVIEW

The portable lab fits in a standard case and includes four modules (DNA extraction, target amplification, sequencing, bioinformatics). As a standalone tool, it allows a complete on site analysis of environmental samples.

### PG portable lab

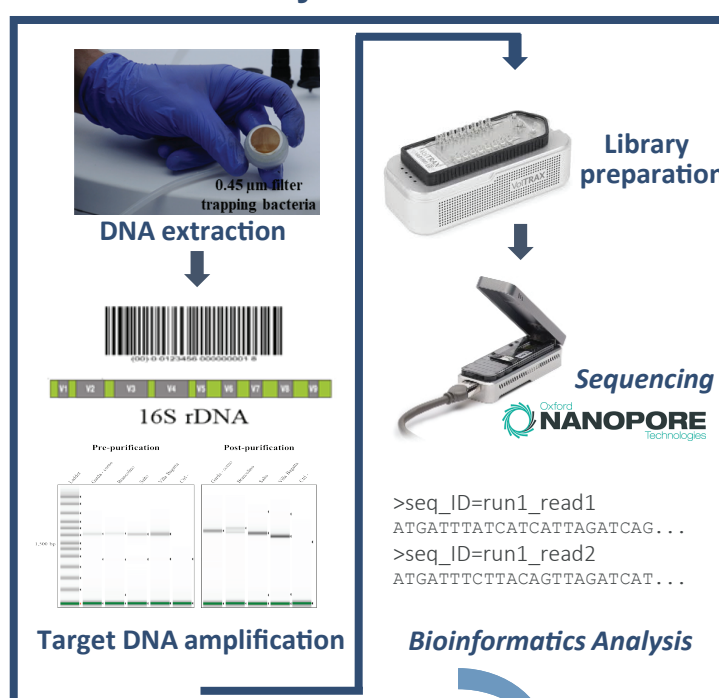


environmental sample  
↓  
water filtration →



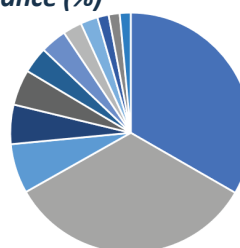
The portable lab is composed of: A) Portable PCR device; B) Vortex; C) Micro-centrifuge; D) Micropipette; E) Voltrax device (optional); F) Filtertips; G) Laptop; H) MinION device

### Analysis Workflow



#### Relative Abundance (%)

- Limnhabitans
- Synechococcus
- Sediminibacterium
- Polynucleobacter
- Fluvicola
- Polaromonas
- Gemmatimonas
- Rhodoferax
- Sphingomonas
- Opatutus



## APPLICATIONS OF TOOL

- Environmental monitoring
- Detection of environmental bacteria
- Changes in microbiota, e.g. extreme weather events

## BENEFITS OF TOOL

- On-site fast analysis
- Detection of not-cultivable bacteria
- No a-priori selection of bacteria
- Affordable instruments

# Water Pollution Detectives

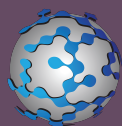
THE GREAT OUSE  
URBAN RIVERS  
IN LONDON

LAKE GARDA

TER RIVER

LAKE YLIKI

## INTCATCH



## 2020

## Development and application of Novel, Integrated Tools for monitoring and managing Catchments

INTCATCH will change the way current in which river and lake water monitoring is implemented. The project will accomplish this by developing efficient, user friendly water monitoring strategies and systems based on innovative technologies that will be able to provide real time data for important parameters. The new business model will transform water governance by facilitating sustainable water quality management by community groups and NGOs using a decision support system and eco-innovative technologies. The INTCATCH systems will be implemented and validated in the urban London and rural Great Ouse rivers in the UK and in Lake Garda (Italy) and will be demonstrated in Lake Yliki (Greece) and in River Tier (Spain).

### INTCATCH Partners:



[www.intcatch.eu](http://www.intcatch.eu)



Co-funded by the Horizon 2020 programme of the European Union

For further information contact the coordinator, Mark Scrimshaw, at Brunel University London, [mark.scrimshaw@brunel.ac.uk](mailto:mark.scrimshaw@brunel.ac.uk), Ant Parsons, leading on commercial exploitation, at Downstreams CIC Ltd., [ant@downstreams.org](mailto:ant@downstreams.org) or Simos Malamis, leading on dissemination of the project outcomes, at the National Technical University of Athens, [smalamis@central.ntua.gr](mailto:smalamis@central.ntua.gr).

INTCATCH HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO 689341.